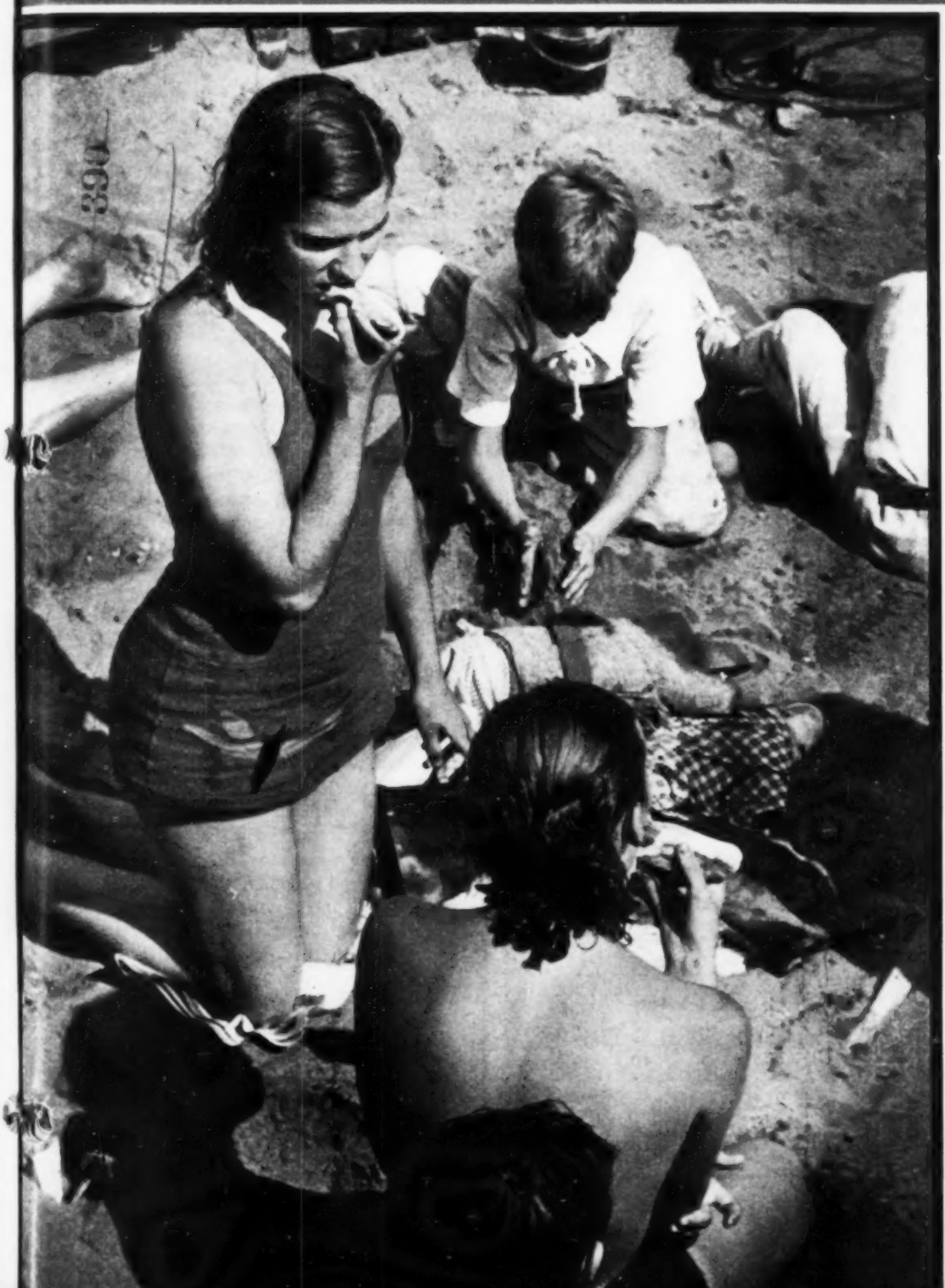
CONSUMERS UNION reports-



for
AUGUST 1936
on

OIL BURNERS,
STOKERS, and
GAS BOILERS

OCT — 1 1936
MEDICAL DIVISION

HOSIERY

WHITE BREAD

LAUNDRY SOAPS

MEAT QUALITY

CONEY ISLAND

NEW YORK CITY
BLACK LIST

CONSUMERS UNION
OF UNITED STATES
22 E. 17th St. New York

Coney Island (See page 12)

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CONSUMERS UNION reports

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IN THIS ISSUE

CONSUMERS UNION REPORTS: 2
WOMEN'S HOSIERY 3
WHITE BREAD 5
LAUNDRY SOAPS 7
HOW TO JUDGE MEAT QUALITY 10
CONEY ISLAND 12
OIL BURNERS, STOKERS, AND GAS BOILERS . 14
DRUG AND COSMETIC BLACK LIST 22

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CONSUMERS UNION REPORTS:

PRICES GO UP

Along with rapidly mounting prices come expert forecasts of further increases in the cost of living in coming months. Bread and milk will soon go up; a little later meat will rise, the experts inform us.

Some of the price rises are unavoidable at this time, but if they are not to result in further serious decline in the general standard of living, they must be met by a determined struggle on the part of organized labor for higher wages. Organized consumers, too, must meet the situation. Milk distributors, bread companies, business organizations dealing with necessities will demand higher prices where there is no justification in increased costs. Where costs do rise, they will seek far more from the hard-pressed consumer than enough to compensate for the actual rise.

Consumers Union members should take the lead in their communities in organizing to prevent unwarranted attacks on the consumer's pocketbook. Strong reaction from consumers has already succeeded in preventing one increase in milk prices to New York consumers, and with the prospects of united consumer action against unwarranted rises mounting day by day, there is an excellent chance of continued success.

The fight against declining standards of living will be most effective when it is fought, as in all logic it should be, by united labor and consumer forces seeking to maintain and raise wages on the one hand, and to prevent unjustified price rises on the other.

THE PICKETS

As reported in the last issue, eleven employees of Consumers Union were arrested and brought to trial for the crime of peaceful picketing at the Ohrbach department store in New York. Together with other workers, they were aiding the effort of Ohrbach employees to fight the discharge of forty-five active union members.

Once again the members of the Consumers Union staff learned that strikers and those who sympathize with them cannot expect justice from employer-dominated courts. The Consumers Union staff members knew—and testified—that there were between twenty-five and thirty pickets on the occasion of the arrests. A policeman testified there had been a hundred. The court ruled that there were a hundred.

The pickets knew—and testified—that they had been walking in single file. A policeman testified that the pickets had marched double file. Double file it was when the court summarized the case. And the court all but wept for the poor pedestrians who had been forced by these hundred pickets marching double file to walk in the gutter.

Police and court were accurate in one respect: A crowd did collect—from the very moment that a squad of police began to herd the pickets into patrol wagons.

The court found the pickets guilty and sentenced each to a fine of $5 or two days in jail. When the pickets unanimously chose jail, the judge had no choice but to suspend the sentences of all.

In the Next Issue:

MEN'S AND WOMEN'S SHOES
WOMEN'S COATS
WHISKEY
AUTOMOBILE TIRES
MEN'S AND WOMEN'S RUBBERS
And Other Products

WOMEN'S SILK HOSIERY

Wear tests show that in the long run it's much cheaper to buy good dollar stockings than most fifty-cent or even seventy-nine cent ones. The purchase of two or three pairs at a time and proper care help to cut stocking bills.

THE BEST FIFTY-CENT STOCKINGS TESTED by Consumers Union are actually more expensive than good dollar stockings. This is one of the main facts brought to light in wear tests* just completed on eleven medium-priced brands of hosiery, and in a comparison of results with those of previous tests on low-priced brands (reported in the May, 1936 issue). The best seventy-nine-cent stockings were found to be more economical than most stockings in the fifty-cent class, but less economical than dollar ones.

Nationally sold brands were chosen for test. In the case of three brands—*Phoenix, Kayser,* and *Gotham*—both seventy-nine cent and dollar hose were tested. The *Gaymode* stockings were purchased in Penney stores both in New York and California. Where possible, 4-thread stockings (knitted of yarn consisting of four threads twisted together) were selected, since from the point of view of appearance and durability these are most suitable for ordinary use.

The Tests

Of the dollar stockings, the *Phoenix, Van Raalte, Rollins Runstop,* and *Kayser* were all firmly knit, long-wearing stockings of good appearance. Of these, *Phoenix* was easily the best, largely because of its excellent reinforcements (an extra panel down the center of each heel). After twenty-eight days of wear, one of the two pairs of dollar *Phoenix* tested had to be taken out of the test because of a run starting from a bad snag in one of the stockings. The other pair had small holes worn in the silk above the toe and side foot-reinforcements at the end of thirty-three wearings, but these do not show and the pair is still in use. In neither pair is there a hole or noticeably thin spot at the heel or in the reinforcement at the side of the toe.

Not all the dollar stockings were good buys, however. *Gotham Gold Stripe* dollar stockings were decidedly inferior both in appearance and wear to several of the seventy-nine cent stockings.

Buying Advice

In order to keep the stocking bills low, one must not only know which brands are likely to be good, but what to look for in buying stockings when known brands are not available, and how best to care for stockings. These problems were discussed in the May, 1936 issue, but a few points will bear further mention.

1. Buy two or more pairs of the same stockings at a time. The best stocking in the world will not withstand stumbling into Junior's toy truck in the dark. But you can still use the undamaged mate with odd stockings from identical pairs.
2. Remember that very sheer stockings are not durable, no matter how much they cost. Buy stockings according to the use to which they are to be put.
3. Be careful to get the right size, length, and stretch. The stocking foot should measure at least half an inch more than the length of the foot when normally supporting the body's weight. Stocking lengths usually vary from 29 to 31 inches, but longer or shorter stockings can be obtained. Make sure they are long enough so that garters do not exert too great a strain. Stretch the tops and the ankles (diagonally from corner of heel to instep) and make sure that when stretched they measure at least 11½ and 8¼ inches respectively. If they don't, the manufacturer has been skimping on silk, and at the same time cutting down on durability.
4. Examine for defects. Rings, shadows, vertical stripes, uneven places in the silk which make dark spots—all these should be watched for, and stockings having such defects should not be purchased as first quality. Occasional defective stockings will be found even in brands usually of high quality.

Hosiery Terms

It is well to know the meaning of the technical terms sometimes used to describe the construction of stockings. The following are some of the more important of these terms:

THREAD: Each thread is made up, usually, of five of the very fine filaments which come from the cocoon, twisted together. This one thread itself is very fine. A few stockings are knit from 1-thread silk, and are necessarily very expensive, primarily because any uneven portions of the silk will show up so noticeably in such sheer stockings that the manufacturer must discard a high proportion of the stockings knit. Service weight stockings are made from silk yarn in which

* For method of wear test in which seven girls on the Consumers Union staff participated, see May, 1936 issue of CONSUMERS UNION *Reports.*

Women's Hosiery

Best Buy

Phoenix (Phoenix Hosiery Co., Milwaukee). $1. Excellent reinforcements; smooth tight knit.

Also Acceptable
(In order of merit)

Rollins' Runstop (Rollins Hosiery Mills, Inc., Des Moines, Iowa). $1.

Kayser (Julius Kayser & Co., NYC). $1.

Van Raalte (Van Raalte Co., NYC). $1.

Montgomery Ward #30-935 (Montgomery Ward, Baltimore). 56c. Very good value for money.

Cooperative Distributors #12 (30 Irving Place, NYC). To non-members, 3 for $2.60; to members, 3 for $2.45 (not sold singly).

Royal Purple #645. (Sears, Roebuck, Chicago). 79c. Best 79c stocking.

Gaymode (J. C. Penney store). 79c. Very nice-looking; wore fairly well although only 3-thread.

Also Acceptable—*Continued*

Phoenix (Phoenix Hosiery Co.). 79c.

McCallum (McCallum Hosiery Co., Inc., NYC). 85c.

Siren (S. H. Kress store). 50c.

Not Acceptable

DeLuxe Quality (F. W. Woolworth store). 40c.

Fine Hosiery (S. S. Kresge store). 25c.

Gaymode (J. C. Penney Store). 59c.

Gotham Gold Stripe (Gotham Silk Hosiery Co., NYC). $1.

Gotham Gold Stripe (Gotham Silk Hosiery Co.). 79c.

Green Star (F. and W. Grand store). 49c.

Kayser (Julius Kayser & Co.). 79c.

Montgomery Ward #951 (Montgomery Ward). 67c.

Royal Purple (Sears, Roebuck retail store). 69c.

Sears Hosiery (Sears, Roebuck retail store). 49c.

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some seven or more threads have been twisted together. In these, less even and consequently less expensive silk may be used, because so many threads are wound together that a defect occurring in one thread is not likely to be noticeable.

GAUGE: The gauge number is supposed to mean the number of stitches in every inch-and-a-half of material. Consequently, the larger the gauge number, the more stitches there should be in the fabric, and the greater the elasticity and strength of the stocking. The actual situation, however, is this: A 45-gauge machine has 420 needles in all. A stocking may be labeled 45-gauge if it has been knit on a 45-gauge machine, whether or not all the needles on the machine have been used. Stockings made with 396 needles on this machine may be labeled 45-gauge though an inch of fabric will be lacking from the width of the leg. A high gauge is used to knit finer stitches and to give strength to low-thread-count stockings by increasing the number of loops or stitches.

TWIST: Highly twisted threads were introduced originally to eliminate the shine from stockings. While experts differ on the maximum amount of twist that can be given silk before it becomes brittle, it is generally conceded that a thread with a larger number of twists per inch (up to 50 or 60) better resists snags, has greater elasticity, is less bulky and makes a stocking more sheer.

Care of Hosiery

As for the daily care of stockings:

1. When laundering, squeeze stockings gently in tepid water and neutral soap-suds. Rinse carefully in tepid water. Hang over *smooth* surface away from heat or cold to dry.
2. If the inside of the shoe at the heel is rough, rub a little ordinary paraffin wax over the rough place. This will postpone holes at the heel.
3. Keep callouses and rough places on the foot softened with cold cream to prevent snags from occurring when the stockings are drawn on.
4. Draw stockings on carefully. Do not grip them below the reinforced top with the fingernails.

Hosiery Labor

The woman who wishes to buy from manufacturers who are fair to their employees has a reasonably wide choice in purchasing stockings. Many nationally known brands of women's hose, including the best buy, *Phoenix*, are made by members of the American Federation of Hosiery Workers.

Of the brands included in the test reported here, others which are union-made are: *Gotham, McCallum, Rollins Runstop,* and *Cooperative Distributors.* The outstanding example of a non-union brand is *Kayser,* which is on the Unfair List. The American Federation of Hosiery Workers has advised Consumers Union that none of the chain-store or mail-order brands can be given unqualified approval, since these distributors usually buy from non-union mills as well as from union shops.

IF YOU BUY AT ONE TIME	BRAND	PRICE	ESTIMATED AV. LIFE	YEARLY COST
One pair	Kress	50c	8 days	$23.00
Two pairs	Kress	50c	10 days	$18.00
One pair	Sears	79c	18 days	$16.00
Two pairs	Sears	79c	20 days	$14.00
One pair	Phoenix	$1.00	30 days	$12.00
Two pairs	Phoenix	$1.00	34 days	$11.00

WHITE BREAD

WITH THE REMOVAL OF MOST PARTS of the grain which could make bread of great value nutritionally, and the addition of a variety of chemicals in the form of bleaches, yeast foods, and special moisture retainers, ordinary baker's bread is no longer the food it once was. Despite its lack of vitamins and minerals and the undesirability and possible harmfulness of the added chemicals, however, white bread supplies an important share of the food calories which Americans consume.

While most of the quantity-produced commercial white breads are about the same in quality, they do differ in economy, and to some extent in taste.

Advertising Claims

Sixteen different brands of white bread were tested by Consumers Union for economy, taste, and other characteristics. As might be expected, the facts brought to light about the various brands bore no relation to the advertising claims of the baking companies. *Silvercup,* "The World's Finest," ranked only *fair* as regards taste. *Golden Crust* may be "Extra Fresh" as the wrapper states, but it was decidedly *poor* in taste, and the sample tested became rancid after standing for two days in its wrapper.

Taystee Bread, approved by the Good Housekeeping Institute, received a poor rating with respect to both taste and economy.

Some bakeries put out two breads under different brand names. Generally, one is more expensive than the other. Both brands are usually carried by the same stores, the more expensive ones often being prominently displayed and "pushed" by the retailer. *Knickerbocker* (7c) and *Golden Crust* (10c) are both made by Gottfried Baking Co.; *Bon Bon* (7c) and *Sliced Delight* (10c) are made by the Bon Bon Bakers. In both cases the less expensive bread was found to be superior to the more expensive in taste and economy.

The moisture content of the breads

tested ranged from 31 per cent to 41 per cent; in other words, nearly half of the weight of some loaves is water. Whether you like a moist or a drier bread is, of course, a matter of individual preference. But it is important for you to know whether you are spending a large part of your bread money for water. In the ratings the costs were calculated on the basis of *dry* bread. It was found, for example, that *Taystee* Bread costs 1.2c per ounce, while *Home Maid, Bon Bon,* and *Grandmother's* cost only half as much.

The taste ratings represent a consensus of opinion of 27 persons who participated in the test. These tests, made by standard taste-testing methods, indicate that only a few brands are outstandingly good or outstandingly poor. Most of them fall into an in-between category. In this large group it is almost impossible to differentiate the breads from one another, with respect to superiority of flavor. Any classification which might be made would exaggerate a distinction which, if present at all, is almost imperceptible. Comparative ratings in this middle group are based solely on cost per pound of moisture-free bread.

Sliced Bread

The practice of selling bread already sliced has been widely adopted. If the consumer were to use the entire loaf of bread immediately after opening the package, sliced bread should be highly desirable. As it is, however, sliced bread offers an excellent method for increasing bread sales. Unless it is carefully rewrapped immediately after opening, the entire loaf dries out very rapidly. Although technically this does not impair the freshness of the bread (which is dependent upon chemical changes tending to cause rancidity), most people dislike dried bread. Slicing also permits the manufacturer to regulate to some extent the amount of bread which the consumer eats. Most people are accustomed to eat a definite number of slices of bread with a meal. This does not vary with the thickness of the slice. Such an opportunity is too good to be neglected; and naturally, the baker tends to slice his bread as thick as he possibly can without protest from the consumer.

Sliced bread sometimes becomes moldy when allowed to stand in a closed space for several days. Molds grow from spores, which may be present because of contamination during the slicing process. Of the brands tested, only one, *Cushman,* became moldy upon standing in a controlled humid atmosphere for 60 hours.

Most of the samples of bread examined were well above the labeled weight. Three samples, however—*Taystee, Superior* (large), and *Home Maid*—were 2.9, 1.2, and 0.2 ounces underweight, respectively.

Competition between rival independent bakeries is keen. In an effort to increase their own share of total bread sales in grocery stores, the companies encourage their driver-salesmen to leave more bread at the retail store than is likely to be sold. That not sold is returned by the grocer the following day. The result is, of course, a considerable waste, with higher distribution costs and consequent higher costs to the consumer. Chain-store bread distribution costs are much lower than the corresponding costs for independent bakers. The total cost of bread to the chain-store is from 9 per cent to 22 per cent less than to the independent baker.

There are widely varying estimates of how the money paid by the consumer for bread is distributed. The estimates depend, to a large extent, upon the source of information. A United States Senate report on the 1930 costs of three of the largest baking companies allocates expenses as follows, with the retail price averaging 7.8c per pound:

24.7%	Flour
9.5%	Other ingredients
7.1%	Labor
21.2%	Other manufacturing expenses and overhead
26.9%	Selling, delivery, and advertising
10.6%	Profit

White Bread

Best Buys

Grandmother's (The Great Atlantic & Pacific Tea Co.). 10.3c.[1]

Knickerbocker (Gottfried Baking Co.). 11.5c.[1]

Hanscom (Hanscom Baking Co.). 12.6c.[1]

Also Acceptable

Bon Bon (The Bon Bon Bakers). 9.9c.

Home Maid (Franco-American Baking Co.). 9.9c.

Bond (General Baking Co.). 13.7c.

Dugan's (Dugan Bros.). 13.9c.

Wonder (Continental Baking Co.). 14.0c.

Golden Crust (Gottfried Baking Co.)[2] 14.4c.

Not Acceptable

Cushman (Cushman Baking Co.). 14.9c.[3]

Sliced Delight (Bon Bon Bakers). 15.0c.

Ward Soft Bun (Ward Baking Co.).[2] 15.1c.

Silvercup (Gordon Baking Co.). 15.4c.

Taystee (Purity Bakeries). 19.1c.[2,4]

Superior (Gristede Bros., Inc.) 14.9c.[4,5]

[1]Taste good.
[2]Taste poor.
[3]Bread became moldy upon standing.
[4]Short weight given on sample tested.
[5]Vitamin D claims objectionable.

Labor in the Baking Plants

THE BAKER'S LOT IS NOT A HAPPY ONE. Prior to NRA, the work week in non-union, handcraft shops was sixty-five hours, and in mechanical shops, fifty-four hours. Much shorter hours were obtained under the code, but when the Supreme Court tossed the National Industrial Recovery Act into the junk-yard, hours lengthened.

Pay has never been high enough—not even in 1929—to provide security for the baker's family. The average wage in 1929 was $27.70. The Bakery and Confectionery Workers' International Union of America, affiliated with the American Federation of Labor, has organized about one-tenth of the workers and improved wages and working conditions. But the union's problem has been difficult, because the baking industry consists of a few giant corporations and a host of small shops—no easy field for unionization.

The industry is one of those endangering the health of its workers. An atmosphere laden with flour dust and excessive moisture means that the baker is often marked for asthma, tuberculosis, and other diseases. And for this risk, he gets only a little over half a cent for each loaf of bread he bakes. As in many other industries, it can be seen that a substantial wage increase need not be a burden to the consumer. To raise the baker's pay fifty per cent would increase the manufacturing cost only about one-fourth cent for each loaf. A brief comment on the labor conditions under which the breads listed are made, follows:

Bon Bon—A non-union product.

Bond—General Baking Company, maker of *Bond* bread, is one of the biggest in the field. It is hostile to union labor, its employees belonging to a company union.

Cushman's—After a recent twelve-week strike, Cushman recognized the union. It now operates under what is tantamount to a preferential union shop basis—nearest approach to a closed, or union, shop.

Dugan's—A non-union product.

Golden Crust—The Gottfried Baking Company is organized as a preferential union shop. Most of the employees in the baking departments are union members.

Grandmother's—The Great Atlantic and Pacific Tea Company is strongly anti-union. It has fought its employees' attempts to organize.

Hanscom—A non-union product.

Home Maid—Franco-American Baking Company is a recognized union shop.

Knickerbocker—Another product of Gottfried Baking Company. See *Golden Crust.*

Silvercup—The Gordon Baking Company is reported to be very hostile to union labor, discriminating against union members and forcing a company union on employees.

Sliced Delight—Another product of the non-union Bon Bon Bakers.

Superior—Miserable working conditions have been reported in the non-union Gristede Brothers Bakery.

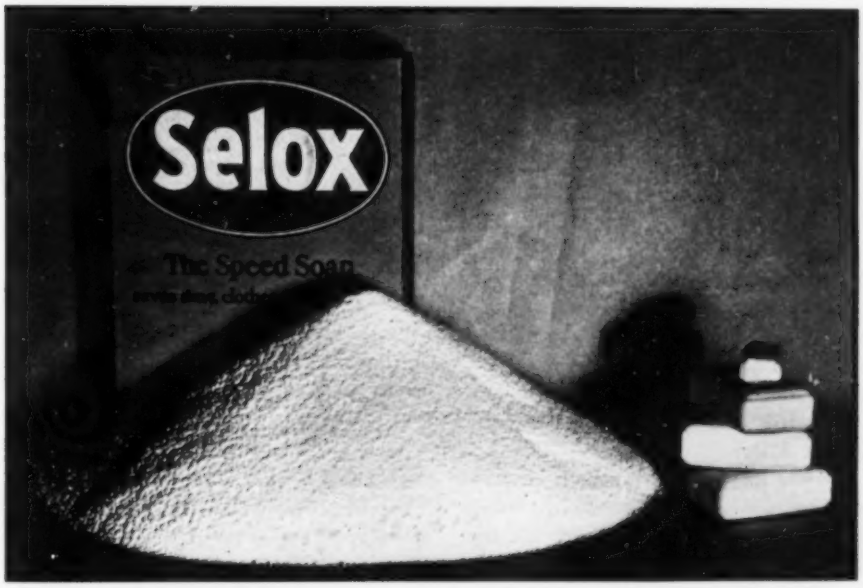
Taystee—In New York City, same as *Cushman's,* Cushman being a subsidiary of Purity Bakeries, makers of *Taystee* bread.

Ward Soft Bun—The Ward Baking Company is one of the large, anti-labor-union, pro-company-union concerns. Employees' activities outside as well as inside the plant are carefully watched.

Wonder—Continental Baking Company is another of the anti-union companies dominating the baking industry. Its labor policy is similar to those of Ward Baking Company and General Baking Company.

LAUNDRY SOAPS

In the long list of flake, chip, bead, and bar soaps are many inexpensive brands suitable for all kinds of laundry.



Don't judge by bulk—with air, water, filler, and builder subtracted, a boxful of Selox contains no more soap than the three and a fraction cakes at the right.

ARE YOU UNPOPULAR? DO YOU HAVE "Dishpan Hands?" Are your dates spoiled by stocking runs? Are you just too tired to go out on Monday evenings?

Then all you need to do is to use *Lux* to wash your dishes and your stockings, *Rinso* for the family wash, and all will be well again. This is what the advertising says.

Chemical and physical analyses, however, show that while *Lux* is a good soap, some cheaper soaps are just as good; and *Rinso* may be too harsh for part of your family wash.

As most women know, a soap satisfactory for white cottons and linens may ruin silk, wool, rayon, and some kinds of colored goods. Ordinary dishes will not be damaged by any kind of soap, but the hands may be irritated by soaps containing alkali. The choice of a soap, therefore, depends upon the purpose for which it is to be used.

Besides bar laundry soaps there are three main types of chip and powdered laundry soap on the market. One is almost pure soap with some moisture; the second contains not only soap, but from a few per cent up to 14 per cent or more of alkaline "builders." (A builder is an alkaline salt, such as washing soda, which acts as a water softener and improves the cleansing action. Builders will damage silk, wool, and synthetic fabrics and may irritate the hands but do have advantages in certain uses.) The third type is *washing powder* (commonly called by the misleading name *soap powder*). It contains more builder than soap. These powders are not the same as *powdered soap;* they are suitable only for rough cleaning jobs.

Bar laundry soaps are generally inferior in quality to soap chips, flakes, or beads, or powdered soaps, *without builders.* Their price per pound of dry soap is somewhat lower than that of chip or powdered soaps *with builders,* but they are often inferior even to such soaps. Those preferring bar soaps can use *Gondola* or *Milano* soap (sold by Woolworth's), or large-size *Ivory,* which are toilet soaps and quite pure, but cheap enough for fine laundry work or dish-washing.

Washing Fine Fabrics

For washable silk, wool, synthetic fabrics (rayon, celanese, etc.), and colored goods, any of the soaps listed under "SOAPS WITHOUT BUILDERS" are safe, and will give excellent results in soft water. *Kirkman's* Soap Chips and the *Cooperative* soaps are listed as *Best Buys* in this class because of their low prices, although the soaps listed as *Also Acceptable* were slightly better in quality. A test was made on the speed of solution of these soaps in lukewarm water, since some housewives regard this as important. *Ivory Snow, Palmolive Beads,* Soap Flakes sold by Cooperative Distributors, and *Lux* dissolved more quickly than the others, but the differences in time were slight. (Fine fabrics should always be washed in lukewarm, *not hot,* water, with a minimum of rubbing.)

If the housewife could be sure that her weekly wash contained only white or fast-colored cottons and linens, she might safely and profitably use the soaps listed under "SOAPS WITH BUILDERS." In actual practice, however, it is frequently difficult even for experienced sorters in commercial laundries to be sure that a garment comes within these limitations.

Fabrics are becoming increasingly complex. Some synthetic fabrics now look like cotton, and cotton can be made to look like silk. Some fabrics are woven with cotton threads in one direction and silk, wool, or rayon in the other. Nor can the housewife tell, at least before the first washing, whether a colored garment is dyed with fast dyes or not. (Sellers' claims and guarantees of fastness cannot be depended upon.)

The soaps with builders are in general somewhat cheaper than those without builders, but both types are inexpensive in comparison with the cost of garments, and the ruining of a single garment by builder may easily mean a much greater loss than the total saving on the yearly soap bill.

Where soft water is available, it is, therefore, advisable to use one of the cheaper soaps without builders (*Kirk-*

man's Chips, *Ivory Snow*, Soap Flakes sold by Cooperative Distributors, or *Palmolive Beads*) for general laundry as well as for fine fabrics. As a second choice, a soap with only a small amount of builder should be used, such as *Chipso*. *Chipso Granules*, *Rinso*, or *Silver Dust*, which contain more builder than *Chipso*, should be used only when it is certain that the wash includes no garments subject to injury by builders. *Kirkman's* Granulated Soap, *Selox*, and *Super Suds* are listed as *Not Acceptable*, because they were adulterated with considerable amounts of inert filler.

If your hands are reddened or irritated by washing dishes with a soap containing builders, use one of the pure chip or bead soaps. If the builders do not irritate your skin, there is no reason for not using one of the inexpensive soaps containing them.

Chip, flake, and bead soaps are notorious for the huge packages in which many of them are sold. Actually, many of the boxes are slack-filled, and the contents are puffed up with air, moisture, and other adulterants. The *soap* in a big box of *Selox*, for example, costs the buyer more per pound than that in a cake of *Gondola* toilet soap.

Many women waste soaps of this type by using more than is needed. Just enough to form good suds should be used.

SOAPS WITHOUT BUILDERS

Safe for any washable fabric. Ordinarily will not irritate the skin. When there is doubt as to the nature of a fabric, it is best to use one of these soaps. The relative cost is indicated by the figures for the equivalent cost per pound of dry soap.

CHIP, FLAKE, AND BEAD SOAPS

Best Buys

COST PER POUND OF DRY SOAP

Kirkman's Soap Chips (Kirkman & Son, Inc.,) 19c a box. 18c

The following two soaps are manufactured for Eastern Cooperative Wholesale, Inc., 112 East 19 Street, N.Y.C., from whom address of nearest retail-cooperative distributor may be obtained. Prices given are retail prices recommended by Eastern Cooperative Wholesale, and may vary:

Cooperative General Purpose Flakes. 22-oz. package, 18c; 5-lb. package, 60c. 14c

Cooperative Granulated Soap. 28-oz. package, 23c. 14c

Also Acceptable

Pure Soap Flakes (Cooperative Distributors, Inc., 30 Irving Place, N.Y.C.) 18c a box plus postage. Cheaper in lots of 24 boxes or more. Not a good buy for those living far from New York City unless purchased in large quantity . . . . . 25c plus postage

Ivory Snow (Procter & Gamble) 27c for 2 boxes 25c

Palmolive Beads (Colgate-Palmolive-Peet Co.) 15c for 2 boxes 25c

Lux (Lever Bros.) Large box 23c; small, 10c (large size) 30c (small size) 33c

Ivory Flakes (Procter & Gamble) Large box 23c; small, 10c. . . . (large size) 32c (small size) 33c

CAKE SOAPS

While ordinarily considered as toilet soaps rather than laundry soaps, the following soaps, though less convenient, may be used in place of pure chip soaps with some saving in money.

Best Buys

Gondola Floating (Woolworth's). 5c a cake 16c

Also Acceptable

Ivory large size (Procter & Gamble). 9c a cake. Cheaper than *Ivory Snow* or *Ivory Flakes*, but somewhat more expensive than *Kirkman's* Soap Chips. 21c

SOAPS WITH BUILDERS

For White Cottons or Linens. Do not use on silk, wool, synthetic fabrics (rayon, celanese, etc.). Should be used with caution on colored goods. May irritate the hands.

CHIP, FLAKE, AND BEAD SOAPS

Best Buy

COST PER POUND OF DRY SOAP

Chipso (Procter & Gamble) Large box 20c; small, 2 for 17c. 3½% builder. (large size) 16c (small size) 19c

Also Acceptable

Soap Chips (Cooperative Distributors, Inc., 30 Irving Place, N.Y.C.) 19c a box plus postage. Cheaper in lots of 24 boxes or more. Not a good buy for those living far from New York City unless purchased in large quanity. 2½% builder. 15c plus postage

Chipso Granules (Procter & Gamble) 20c a box. 10% builder. 17c

Rinso (Lever Bros.). Large box 17c; small, 2 for 17c. 13% builder. (large size) 16c (small size) 23c

Silver Dust (Gold Dust Corp.). 27c for 2 boxes. 12% builder 19c

Not Acceptable

Kirkman's Granulated Soap (Kirkman & Son, Inc.). Excessive filler. 20c a box. 10% builder. 19c

Selox (Procter & Gamble.) Excessive filler. 13c a box. 14% builder. 19c

Super Suds (Colgate-Palmolive-Peet Co.). Excessive filler. Claims objectionable. 9c a box. 13% builder. 20c

Oxydol (Procter & Gamble). 21c a box. Excessive filler, and amount of builder too high for most purposes. Not "supercharged with pure rich soap" (dry soap content was less than 70 per cent). Not suitable for silk and wool as intimated on label. 22% builder . . . 21c

CAKE SOAPS

Best Buy

COST PER POUND OF DRY SOAP

Kirkman's Borax (Kirkman & Son, Inc.). 3 cakes for 13c. Misbranded, in that it did not contain borax (which would be of little value if present), but otherwise quality was good and cost lowest of all tested. 2.2% builder. . . 11.2c

Also Acceptable

Fels-Naptha (Fels & Co.). 5c a cake. Amount of naphtha present was not sufficient to produce any substantial increase in cleansing power. Should not be used for silks or woolens as advised. 5.2% builder. 13.0c

Octagon (Colgate - Palmolive - Peet). "5c Giant Size." Not safe "for all uses." 9% builder. 14.1c

Not Acceptable

P & G White Naphtha (Procter & Gamble). 5c a cake. Excessive amount of builder. Amount of naphtha present practically of no value as a cleanser. 20.1% builder. . . 15.7c

WASHING POWDERS ("SOAP POWDERS")

Contain only 15 to 20 per cent soap, about 40 per cent soda, and about 30 to 40 per cent moisture. Do not use on silk, wool, or colored goods, or, except occasionally for badly soiled garments, on cotton or linen. May irritate the hands if used for dishwashing, but an effective cleanser, especially on greasy pans. Useful as a water softener, and for miscellaneous household cleaning jobs.

Ratings are based on the cost per pound of dry soap and soda, taking into account the difference in value of these two ingredients.

Best Buy

A & P Soap Powder (Sold by A & P stores). 13c a box. Lowest in cost, but advice that it be used on silks and woolens objectionable.

Also Acceptable

Pride Washing Powder (Swift & Co., Chicago). 15c a box. *Not* safe "for all cleaning purposes."

Gold Dust (Gold Dust Corp., N.Y.C.). 14c a box. *Not* "mild as any soap"; *not* an "all purpose cleaner"; *not* "perfectly harmless."

Kirkman's Soap Powder (Kirkman & Son, Inc., Brooklyn, N. Y.). 18c a box. A model of honest labeling for this type of product. Somewhat more expensive than the others.

Not Acceptable

The following washing powder was misbranded as powdered soap:

Grandma's Powdered Soap (Procter & Gamble).

In the Soap Factories

THE SOAP INDUSTRY'S EMPLOYEES CONstantly face a number of health hazards, familiar to insurance underwriters but little known to the public. Handling fats, oils, alkalies and acids; working in excessive heat, steam, and moisture make the soap worker's job an endurance contest in which only the strongest stand a good chance of escaping damage.

Stomach, nerves, lungs, eyes, teeth, and skin are all in danger, according to Dr. Carey P. McCord, of the Industrial Health Conservancy Laboratories in Cincinnati. Dr. McCord described health problems of soap workers a few years ago in *Industry Report*, an underwriters' magazine.

Inflammation of the lungs and eyes, and burns are in store for many of the men who handle the caustic soda used in soap making. Copra, the dried kernel of coconut, may cause copra itch among those who handle and grind it. The men who churn the soap mixture in the great kettles are exposed to jaundice, skin lesions, eye trouble, anemia and other dangerous changes in the blood.

Steam and moisture in the fat-pressing rooms and the dampness of the glycerin rooms subject the workers to the possibility of inflammation of the joints, muscles, and nerves.

Mineral acid, bichromate solution, and chlorine gas are all used in the fat purification process. All can do serious damage to the health of the workers who come into contact with them.

The men who handle naphtha soap are exposed to at least ten different ailments. They include naphtha jags, dizziness, vomiting, jaundice, eye inflammation, perversion of taste, and difficulty in breathing.

One reason why soap making is still an unhealthy occupation may be that there are no strong unions to fight for safe working conditions. So far as CONSUMERS UNION has been able to learn, there is no union-made soap on the market.

Procter and Gamble Manufacturing Company, by far the largest soap makers in the nation, have long been praised as pioneers in humanizing relations with their employees. The "humanizing" has been effected by one of the oldest and best organized company union systems in the country, plus the famous "guaranteed employment" and "profit-sharing" plans.

Such "welfare" plans lost much of their meaning during the depression, when wages were sharply cut to help maintain profits of nine and ten million dollars a year. Thanks to these payroll economies, the company was able to report $10,808,000 net profits for the year ending June 30, 1933—the worst period of the depression.

Under the stimulus of the National Industrial Recovery Act, employees in two Procter and Gamble plants had the hardihood to form unions of their own. At Long Beach, Calif., the company retaliated by firing active A. F. of L. unionists. At Staten Island, N. Y. an independent union was established. A long campaign of intimidation and petty reprisals was climaxed just before Christmas last year when the president of the union, an able mechanic with an exceptionally fine record, was summarily discharged. He found that his job was not guaranteed; and his co-workers, many of whom could barely afford the 25-cent monthly dues, were forced to allow the union to disintegrate.

How to Judge
MEAT QUALITY

You can't buy meat by brand; but with practice, you can learn to judge the quality of the cuts which are offered to you in the butcher shop.

THE VALUE OF MEAT IN THE DIET WAS pointed out in an article in a previous issue of CONSUMERS UNION *Reports*. Since the average family food budget allows little for meat, it is important for the buyer to know how to put the family's meat money to the best use. This article is intended to help the buyer get good meat.

A relatively small amount of the meat sold is government-graded; but there are certain characteristics by which the quality of meat can be judged. The following is true of most meats:

1. The finest meat has the most fat, evenly distributed in a fine network. (This is termed "marbling.") Lack of fat indicates a tough and tasteless cut.
2. Quarters and sides of the animal from which cuts are taken should be firm and plump-looking. Glossy, greasy-looking meat is of inferior grade.
3. The age of the animal is indicated by the bone—red bone-marrow indicates a young animal; yellow or white bone-marrow, an older animal.
4. Meat should be entirely free of offensive odor. Odors (and discoloration, too) are sometimes disguised, however, by the use of sodium sulfite.

Each kind of meat has its special characteristics, which the buyer should learn to recognize. Probably the best way to do this is to examine every piece of meat received from the butcher in the light of the information given below.

BEEF

GOOD QUALITY (steer and heifer): The fat is firm, creamy white, brittle or flaky, with heavy deposits between muscles and through meat. Outside flesh of a quarter is a light cherry-red. (Freshly cut muscle is dark red; it turns bright red, then gradually back to a dark color as it grows stale.)

INFERIOR QUALITY: The fat is soft, yellow, present in thin layers. Flesh is of a very dark color.

VEAL

GOOD QUALITY: The flesh is firm, velvety, fine-grained; its color, a light pink. Bones are small and can be cut or sawed easily, without splintering. The exterior layer of fat is thin, and there is no marbling;* the fat in the interior is pinkish in color.

INFERIOR QUALITY: The flesh is of a dark color. There is little or no fat.

There is a great difference between veal and calf. Veal is usually meat from very young milk-fed animals. Calf meat is from animals that have outgrown the veal stage but have not fully developed the characteristics of beef animals. Veal of good grade is tender and tasty; while the meat of calves that have been fed on skim milk and grain or range grass has no body fat and is watery. Veal has more lean meat per pound than any other meat.

CALF

GOOD QUALITY: The flesh ranges in color from light tan to reddish brown. Bones are soft and small. Fat is creamy white, and is to be found in thick layers both inside and on the exterior.

INFERIOR QUALITY: The flesh is dark; there is little or no fat.

LAMB

GOOD QUALITY: The flesh is fine-grained, firm, velvety; it is pink-red in color. Fat is creamy pink; there is plenty of it. Bones are red and porous.

INFERIOR QUALITY: The flesh is a dull red; greasy-looking; not solid. There is little fat, and that of a yellow color. The bone-marrow is yellow.

MUTTON

GOOD QUALITY: The flesh is either grayish or brick-red in color. There is a thick outer covering of white, brittle fat. The bones are large, white, and flintlike.

INFERIOR QUALITY: The flesh is dark red and there is little fat.

PORK

GOOD QUALITY: The flesh is firm; well-marbled; grayish white or light grayish pink in color.

INFERIOR QUALITY: The flesh is watery; greasy-looking; soft. Fat is slimy, yellow; and there is little of it.

Pork *hams* should be short and plump; their skins thin, smooth, with no wrinkles and no hair pores.

Pork *loin cuts* should be of uniform thickness.

* This is an exception to the general rule that the finest meat is well marbled.

Pork *spareribs* should have a high proportion of meat to bone and fat.

Pork *tenderloin* should be thick; plump-looking.

Pork *chops* should have flesh of a pale pinkish color. The bone should be orange-red in color. Indications of inferior quality in pork chops are: flesh of a very dark color; bones of a yellowish shade with white or greenish film.

In New York City and vicinity, so-called Jersey Pork and Western Pork are sold. Most Jersey Pork is from animals fed on swill or garbage, peanuts, or spoiled fish. Western Pork is from animals that have probably been fed on corn and potatoes. Neither Jersey Pork nor Western Pork is free from the health hazards represented by *trichinae* or tapeworms with which pork is commonly infested and which makes it necessary that all pork be thoroughly cooked.

LIVER, KIDNEY, TONGUE, and BRAIN should not be bought if the meat emits an odor; or if it shows nodules (spots with a gritty feel) when sliced. Odor indicates putrefaction; nodules, that the animal was diseased.

Calf liver can be distinguished from beef liver by color; beef liver is darker than calf liver.

Kosher (Jewish) meats, while they have the advantage of freshness, are no more nutritious than non-Kosher meats, and are subject to the same differences of grade.

The Purple Stamp

The purple stamp seen on cuts of meat in the butcher shop may have any of three meanings. It may be a government *inspection* stamp. It may be a government *grade* stamp. But purple is also the color of the stamp used by many meat packers for their own meat-grading designations. The meat purchaser should, therefore, *read* the stamp—not assume that it is an assurance that the meat has passed government inspection, or that it is a mark of government grading.

Meat that crosses state lines on its way from packer to retail butcher is subject to inspection by the U. S. Department of Agriculture. Tubercular and other diseased animals, and vermin-infested animals are supposed to be eliminated in this inspection and only edible, wholesome meat passed. The meat inspection stamp of the Federal Government is small and round, and reads, "U. S. Inspected and Passed" or an abbreviation of these words.

The general assumption that government-inspected pork is free from *trichinae* is unwarranted. Microscopic examination of pork for *trichinae* was discontinued in 1907, and since that time no attempt has been made to carry on such examination in any part of the United States.

Meat that is butchered and sold within the boundaries of a state does not undergo federal inspection. Effective state and municipal inspection is almost completely lacking. It is a good rule not to buy any meat not bearing the Federal inspection stamp.

Meat-grading service by the U. S. Department of Agriculture is available at a fee of $2 an hour, but it is not compulsory. Consumers should demand government-graded meat, and favor those butchers who provide it. The official government grades (named in the order of the quality of meat they indicate) are: prime, choice, good, medium, common, cutter, and low cutter.

Government Grades

Meat of *prime* grade is scarce, and is used chiefly for display purposes.

Choice grade meat is excellent in quality, but expensive, and usually reserved for high-price hotels and restaurants and the wealthy trade.

Meat of *good* grade is sold in middle-class and workers' neighborhoods. It is edible and tasty.

Though meat of *medium* and lower grades may be fresh and edible, it is usually tasteless. The difference between meat of *choice* and meat of *medium* grade may be compared to the difference in taste between a spring chicken and an old hen.

Cutter and *low cutter* grades of meat are used chiefly for processing, and evolve into such forms as sausage, bologna, frankfurter, and scrapple.

The government grade mark runs continuously on the carcass of the animal, one word to a line. The first line reads, "U. S."; the second gives the grade (as. "choice"); the third gives the classification of the animal (as, "calf"); and the fourth line carries the initials, "B A E" (meaning, Bureau of Agricultural Economics of the Department of Agriculture).

The grading maintained by meat packers, and indicated by their own purple stamps, does not conform to the official grades of the government.

Even government grades should not, however, be considered a guarantee of quality. By the time grade-stamped meat has arrived at the butcher shop, it may have so deteriorated in the warehouse, or in transit from packer to jobber to middleman to butcher, that it has become inferior to the grade originally stamped on it.

The great demand for steaks, chops, and other tender cuts of meat results in a high price for these cuts. The consumer should remember, however, that cheaper cuts of meat are just as nutritious. But they are more difficult to prepare, requiring cooking skill to make them palatable. The addition of vegetables, spices, and herbs—such as sage and thyme—in cooking, following the judicious breaking up of the meat fibers by pounding, may make the cheap cut as tasty as a more expensive grade.

Because of the numerous methods by which butchers can deceive customers, it is important for the meat buyer to trade with a butcher having a reputation for honest dealing.

CORRECTIONS

MOTOR OILS: July, 1936 issue, page 18, second column: In the listing of *Penn Coop*, the price should have been given as *18c a quart in 2-gallon lots* instead of *24c a quart.*

The price has since been reduced to *about 17c a quart in 2-gallon lots;* therefore, the oil now ranks as a *Best Buy.* Many of the retailing cooperatives which purchase it in large lots sell it in bulk at 15c a quart.

MOTH PREVENTIVES: June, 1936 issue, page 17, third column: In the listing of *Flit,* the second and third sentences should be changed to read: Contained, by chemical analysis made in 1932, about 1 lb. pyrethrins [instead of pyrethrum] to 120 gallons of kerosene. This is equivalent to about 9/10 lb. of pyrethrum powder (containing 0.9 per cent pyrethrins) per gallon of kerosene. *Flit* is not effective as a moth preventive when used with Flit-sprayer as directed.

CONEY

A NICKEL IS YOUR TICKET TO CONEY Island. Most famous beach resort in America, it provides a salt-water bath for millions of New Yorkers who will never touch the white sands of Provincetown or Virginia Beach. The subways don't go that far; and for a vast number of New York City residents, no recreation is possible beyond the limits of the five-cent fare.

From freak foods to fancy thrills, the boardwalk town on Brooklyn's shore is an overgrown pattern of hundreds of similar resorts throughout the nation. Call it a paper-covered edition of Atlantic City and you won't be wide of the mark.

What kind of recreation and refreshment is provided by New York City and by private concessionnaires at Coney Island? There is, of course, the ocean, but a billion gallons of raw sewage are poured into New York Harbor every day and distributed by the tides to Coney Island and other surrounding beaches. The New York *World-Telegram* has fought hard for a cleanup. But men and women, boys and girls, with only a few dimes to spend must go somewhere, so the subway trains to Coney Island are no less crowded, even though the swimmers know they must share the sea with a countless host of bacteria. There's nowhere else a nickel will take them.

Another story about Coney Island hasn't made the front pages yet. It is told in a matter-of-fact laboratory report by a Consumers Union chemist who with several assistants went to the famous resort last July 15th, equipped with sterile test tubes and enough money to buy samples of the drinks and delicacies sold along the boardwalk. Briefly and bluntly, the laboratory analysis showed that the sewage-laden sea water is no more contaminated than are some of the ice-creams and soft drinks that cool the bathers.

Ten out of twenty-two food samples tested had B. coli (bacteria from the intestines) or gas-forming bacilli in varying numbers. These included root-beer, milk, two kinds of frozen custard, Popsicle, malted milk, Dixie Cup, sherbet, and chocolate and vanilla Mel-o-Rol. B. coli are not in themselves harmful, but they indicate contamination of a type which may introduce typhoid or other disease organisms.

In fairness to the manufacturers of some of these products, it must be noted that contamination may have occurred after the products left the factory. Methods of handling foodstuffs at the beach are in general not up to the sanitation standard that a Park Avenue matron would require for the feeding of her second-best Pekingese. It may even be said that some of the dispensers go out of their way to collect bacteria for the customer—for example, the technician wrote in the report on Mel-o-Rol: "Salesman removed ice cream from wrapper by hand rather than by attached tabs made for this purpose."

The average permissible number of bacteria per cubic centimeter [1] under state milk regulatory laws is around 50,000. In most other foods the number should be much less, and there should be absolutely no B. coli present. Scores on the Coney Island menu are given in the accompanying table.

The sample of sea water was taken twenty feet from the waterline. Only two of the commercial drinks, it will be noted, had fewer bacteria than the sea water, although the presence of B. coli in the latter makes it potentially more injurious than a product such as the ice-cream sandwich with a bacteria count of 900,000 per cubic centimeter but no B. coli.

High bacteria counts do not necessarily mean that food is unclean or harmful. The only certain conclusion is that methods of handling (such as refrigeration) are not good enough to check spoilage. The risk is, however, that conditions which favor the growth of harmless bacteria also speed multiplication of harmful germs that may be present.

Housewives who insist that their dishes be scalded after washing in order to remove the last vestige of greasy dishwater could not hold a job behind most Coney Island counters. At one restaurant, warm water was used for both washing and rinsing—an encouraging exception to the common practice of washing glasses and other dishes in cold water. But first prize for fastidiousness went to the Nedick

[1] There are about 475 cubic centimeters in a pint.

ISLAND

counterman who, to avoid continual wetting of his hands, merely held the glasses by their bottoms and swished the rim portion through two waters for a few seconds. *(See photo at left.)*

Visitors to Coney Island should know, however, that they are "protected" against dirty dishes by a municipal ordinance which requires that all dishes be scalded in boiling water for not less than one minute. It's an excellent regulation, the only trouble being that the restaurant owners and refreshment stand proprietors have apparently never heard of it.

Coney Island and its counterparts throughout the country, false and frivolous though they may be, are an authentic part of the American scene, giving pleasure to millions. To argue that there is danger of a serious and widespread epidemic from the large doses of bacteria administered to people who eat at Coney Island and other resorts would be too much on the alarmist side. The body can take care of an amazing number and variety of bacteria without harmful results, although here and there some one will be stricken.

Certainly none should be denied the thrill of eating a baked waffle with cream cheese, pineapple tidbit, and grape jelly inside—all for a nickel, and the hand that takes your nickel handles the waffle for the next customer. But most of us would enjoy the baked waffle not one whit less if it were clean as well as exciting. It ought to be possible to get that kind of waffle—even at Coney Island.

MENU

	BACTERIA PER CUBIC CENTIMETER	GAS-FORMING[1] ORGANISMS (PROBABLY B. COLI)
Malted milk	3,000,000	+
Frozen custard	1,190,000	++
Dixie Cup	1,000,000	+
Ice-cream sandwich	900,000	−
Frozen custard	870,000	−
Frozen custard	190,000	+
Jelly apple-coating	160,000*	−
Fudgicle	125,000	−
Root-beer	80,000	+++
Round-'n-'Round (sherbet)	75,000	+
Milk	75,000	+
Root-beer	50,000	−
Lime soda	43,000	−
Mel-o-Rol	40,000	++
Popsicle	28,000	+
Orange drink	25,000	−
Orange drink	23,000	−
Mel-o-Rol	21,000	+++
Coca-Cola	18,000	−
Chocolate soda	10,000	−
Sea water	8,000	+++
Glass (in restaurant)	7,500*	−
Drinking water (restaurant)	2,000	−
Orange drink	1,800	−
Drinking water (fountain)	1,000	−
Lemon drink	300	−
Fork (in restaurant)	45*	−
Knife (in restaurant)	15*	−

[1] The number of plus signs indicates the relative contamination with gas-forming organisms; one plus sign means slight contamination, and three, great contamination.

*Total bacteria.

OIL, COAL OR GAS?

Advice on Domestic Heating Plants

The installation of a heating system affects your comfort and your pocketbook for many years. Consider carefully your needs, what you can afford, and the alternative systems available before making a choice. Take into account the many costs involved besides fuel costs. And don't buy any make without first finding a reliable dealer who has been in the business for several years.

WHAT TYPE OF HEATING SYSTEM should you install? The decision will be easier if you will first decide just how important to you are the two factors of convenience and economy. If you are looking for maximum convenience and do not need to worry about cost, the decision is simple: install a conversion gas burner or gas boiler. You will not even have to take the trouble to order fuel as with an oil burner, and in most cities the gas company will provide repair and maintenance service.

If maximum economy is your aim, the choice will depend largely on where you live. In most areas, the best bet from the point of view of economy is a magazine-feed coal boiler. But if you are fortunate enough to live in a community where cheap natural gas is available, a gas burner or boiler, besides being the most convenient source of heat, may also be the cheapest.

Convenience vs. Economy

If you are an average home-owner, the problem will be less simple. You will want as much convenience as you can afford. You may be willing to pay something extra for automatic heat and the uniform temperatures which it provides. The comparative cleanliness of oil or gas heat and extra cellar space gained by getting rid of coal bins and ash cans may appeal to you—if it doesn't cost too much.

Your problem becomes one of finding out just how much automatic heat costs, and this is difficult. Oil- and gas-burner and stoker salesmen will try to have you base your comparison on fuel costs alone, despite the fact that fuel costs may amount to less than other costs. Burners and stokers don't "last a lifetime." They will have to be replaced after about ten years, and it is poor financial management not to figure an annual depreciation charge into your costs. To these charges you should also add interest on the cost of the installation, the probable cost of repairs, and the cost of electricity required to operate the stoker or the oil burner.

Figure the Costs

Typical cost figures for the various types of heating systems available are given in the table on page 15. But these figures are intended only as a very general guide. Even the initial cost of a burner varies greatly from one area to another. You will do well to prepare your own table based on the local prices of the installations you are considering, and the local cost of coal, of oil, of electricity, and of gas. If you must draw money out of a bank paying two per cent interest in order to pay for a burner, figure interest at two instead of five per cent. If you must take it out of investments paying seven per cent, then increase the interest figure.

Get Standard Parts

Enough makes of each type of burner or boiler are listed to permit you to make a choice in most communities; but if it is necessary to buy a little-known make, be sure that all parts are standard, and readily available from more than one dealer. There are over five hundred makes of oil burners on the market. Many are sold under several different names, and many pass off the market after two or three hundred or even fewer are sold.

The best stoker or oil or gas burner will be unsatisfactory if installed or serviced poorly, while any one of a dozen of the better stokers, or any one of about three dozen of the better oil burners, will give good results if properly installed and serviced. It cannot be too strongly emphasized that if a stoker or burner is of modern, orthodox design and well built, satisfactory operation depends almost entirely on the installation and the servicing. This means that it is actually more important to find a good dealer than a good stoker or burner.

Look for a dealer who has been in business for a long time, who has made a large number of installations, whose reputation with his customers is good, and who has his own installation and servicing department instead of paying

	COMPARATIVE COSTS USING PRESENT BOILER[1] $				COMPARATIVE COSTS FOR ALL NEW EQUIPMENT $				
	HAND FIRED BOILER OR FURNACE—PRESENT INSTALLATION	COAL STOKER	OIL BURNER	GAS BURNER-CONVERSION TYPE	MAGAZINE FEED BOILER	STOKER AND SPECIAL COAL BOILER COMBIN.	OIL BURNER AND SPECIAL BOILER	OIL BURNER-BOILER COMBIN.	GAS BURNER-BOILER COMBIN.
Original Cost—Installed	...	230	290	195	175	370	430	630	350
Yearly Fuel Bill	117[2]	76[3]	111[4]	182[5] (95)[6]	68[3]	55[3]	98[4]	91[4]	137[5] (71)[6]
Depreciation	...	23 (10%)	29 (10%)	14 (7%)	9 (5%)	30 (8%)	34 (8%)	63 (10%)	25 (7%)
Service for Burner or Stoker	...	8	15	...[7]	...	15	15	15	...[7]
Cost of Electricity for Motor[8]	...	20	16	1	...	16	16	16	1
5% Interest on Investment	...	12	15	10	9	18	22	32	18
Total Average Seasonal Cost	117	139	186	207 (120)[6]	86	134	185	217	181 (115)[6]

[1] Since continued use of your present boiler involves no further expenditure, no depreciation or interest on the original cost of the boiler is included in the charges.

[2] Anthracite nut coal at $13 per ton.

[3] Anthracite buckwheat coal at $8.50 per ton.

[4] Fuel oil at 6.5c per gallon.

[5] Manufactured gas (520 btu per cu. ft.) at 65c per thousand cu. ft.

[6] Natural gas (1000 btu per cu. ft.) at 65c per thousand cu. ft.

[7] Gas companies as a rule take care of all labor costs for repairs and adjustments and charge only for replacement parts.

[8] Electricity at 5c per kwh.

HEATING EQUIPMENT AND FUEL COST ANALYSIS

This table is for comparative purposes only. The figures are estimated for a six-room house and are based on the best average costs obtainable; but prices for equipment, fuel, and power in a particular locality may vary widely from those given. Each buyer of heating equipment should prepare his own table for the equipment in which he is interested, based on local costs.

some contractor to do installation and servicing. Such sub-contractors have been known to tell dissatisfied stoker or oil-burner owners: "I get so little for my work from the dealer who sold you the burner that I can't give you the best possible installation and service." A dealer who does his own work cannot make this excuse. But this does not mean that all dealers with their own service departments can be depended upon. Many pay their "skilled" mechanics only forty or fifty cents an hour in an effort to make profits despite low prices. You should not expect good service from mechanics who are paid such a low rate.

It is most unwise to buy from a company that sells only a few stokers or burners a year, even if it provides its own servicing. It is unlikely to have skilled service available twenty-four hours a day, seven days a week; and during cold weather one does not want to wait hours or days for a service man to repair a burner which has stopped functioning.

In purchasing a coal stoker or an oil or gas burner for a house which already has some kind of heating system, you will ordinarily have to choose between using the stoker or the burner with your old boiler or installing a new boiler. Practically every coal boiler and heating system is adaptable to automatic firing, but those showing defects when hand-fired should be repaired before a stoker or a burner is installed. The intermittent and intense firing of most automatic burners may cause defects to become worse and result in greater dissatisfaction than before. Leaky and inoperative vent valves on steam radiators should be replaced; hot-water or warm-air systems having poor circulation may need electric circulators; and leaky boiler sections should be replaced by new ones. Old warm-air furnaces especially should be carefully examined. If these have leaks which permit smoke and gases from the fire box to come out of registers, it is unsafe to install automatic firing devices in them. Be sure that the entire heating system is in good order if you want low fuel costs with automatic heating.

Boiler Economy

Although most coal boilers and furnaces are adaptable to automatic firing, only about one out of five will give as good fuel economy as the highest grade special boilers built for stokers and oil burners. With ordinary hand firing, an inferior or undersize boiler may not cause greatly excessive fuel consumption, because it works at its maximum capacity perhaps only a dozen sub-zero days each winter. But with most stokers and oil burners, the fire burns at a maximum rate each time a drop in room temperature causes the thermostat to turn on the stoker or burner motor, whether the day be mildly cold or severely cold. If the boiler is of too small capacity or of such design that it cannot efficiently absorb the heat generated at maximum capacity, too much of the

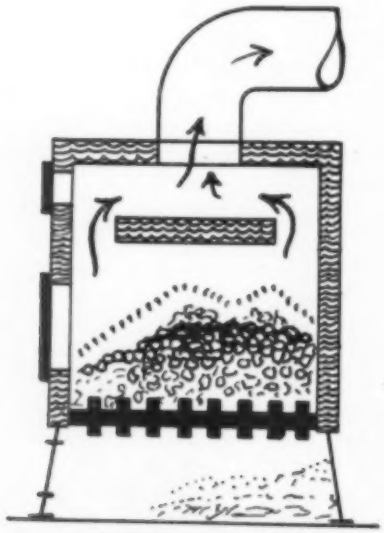
heat will go up the chimney, and fuel will be wasted.

If you have had difficulty in heating your house in extremely cold weather because of insufficient boiler capacity, you should either increase the size of the boiler by adding more sections to it, or replace it with a larger boiler, before changing to automatic heat.

But if you have no trouble in getting enough heat in very cold weather, don't be too easily persuaded to scrap your old boiler, despite what has been said. The table shows that in a typical case, the spending of $630 on a special oil-fired boiler-burner unit instead of $290 for the burner alone will cut the annual fuel bill $20. This amount less than pays for the difference in depreciation and interest, making the purchase of the combination unit uneconomical despite the fuel saving. If your original boiler is fairly efficient to start with, the fuel saving would be much less.

You can find out how efficiently your boiler operates at maximum burning rates, by having a heating engineer or contractor measure the stack temperature. This is easily done with a special thermometer inserted in the smoke pipe of the boiler. If the stack temperature is under 500° Fahrenheit when the boiler is operating at maximum load, it would be a sheer waste of money to buy a special new boiler for oil burner or stoker. If stack temperatures rise above 700°, a new boiler will probably be a sound investment.

If your old cast-iron boiler is not suited to automatic firing but is in good condition, you can improve it by adding additional sections, or by adding what is known as an "economizer." This consists of copper coils or iron castings installed in the boiler to increase the heat absorption area.



Four-Section Round Cast-Iron Boiler. Three sections must be added to adapt to stoker or oil.

The combustion efficiency of a stoker or an oil burner—dependent on fuel and air mixture—will affect fuel bills greatly whatever boiler or furnace is used. Improved combustion efficiencies are possible if special draft regulators are installed on the smoke pipes to reduce draft variations to a minimum. Combustion efficiency is determined readily with a special instrument known as the Orsat analyzer. Every dealer in stokers or oil burners should be familiar with this instrument and willing to use it to test each installation he makes. Ignorance of the use of the Orsat analyzer often indicates the dealer's disinterest in providing economical installations, and an inability to produce high efficiencies with his equipment. Skillful and able dealers can not only explain how this device operates, but will welcome a chance to test the efficiency of a heating plant with it.

Temperature Controls

Temperature controls are desirable with any type of automatic heat. They turn on the firing devices only when heat is needed, thus assuring uniform instead of fluctuating temperatures. Be sure, however, that such controls include an electric clock thermostat to provide lowered night temperatures automatically. The clock thermostat may cost $20 to $35 more than a plain thermostat, but it saves its cost, in some cases during the first winter, by lowering fuel bills. *Minneapolis-Honeywell* controls are the most reliable. *Penn Electric Switch* heat controls cost less than *Minneapolis-Honeywell*, and are a close second in performance.

Avoid *Mercoid* controls, with which some half-dozen nationally known stokers and oil burners are equipped. These controls have been found to be less reliable. Do not buy little used makes, since it would be necessary to depend on a few dealers and on a comparatively small manufacturer for service and parts. This is undesirable with heating equipment, where quick replacements and repairs are essential.

A low-level water control should be used on automatically fired steam boilers; but water feeders in general are not recommended, because they are not dependable after being in use four or five years.

COAL STOKERS

Many thrifty home owners, anxious to enjoy the uniform temperatures of automatic heat and willing to handle coal and ashes a few minutes a day, will act more wisely in buying a good low-priced stoker than in buying an oil burner. Fuel costs with a conversion oil burner are seldom less than with hand-fired coal, but a stoker frequently cuts fuel costs twenty-five to fifty per cent. The saving depends, however, on the availability of stoker coal at comparatively low prices, for the stoker owner generally uses as many tons of coal as he used with hand firing, the saving resulting from lower cost per ton.

Stoker sizes of anthracite coal give about the same amount of heat per ton as the larger sizes used with hand firing, but the stoker's efficiency exceeds that of hand firing by from fifteen to twenty-five per cent. This would seem to indicate that less coal would be used with a stoker. But experience has proved that homes are better heated after stokers are installed; they are not chilly at rising time in the morning, as they usually are with hand firing, and they do not grow cold during the day because of failure to give the heating plant proper attention. Hence, when buying a stoker, figure on using as many tons of coal per year as you used before. If fewer tons should be burned, you'll be that much to the good.

The increasing popularity of automatic stokers has brought increases in the prices of the small sizes of anthracite coal in some cities, but for the next ten years at least most stoker owners are likely to make considerable savings on fuel. If stoker coal costs more than seventy-five per cent of the price paid for hand-fired coal, however, the purchase of a stoker will be of doubtful economy.

Stoker prices range from about $200 to $400 for the smallest domestic sizes,

prices depending not so much on the quality of the stokers and the installations as on the features of the equipment. Stokers in the $200 class do not have ash-removal features; the owner must rake the ashes and clinkers from the firebox periodically and dump them in an ash barrel. This chore is less disagreeable than it would seem to those unfamiliar with stokers because few ashes and clinkers are formed, and the stokers are designed to facilitate removal. If your pocket-book is slim and you are buying a stoker chiefly to reduce your fuel bill, by all means consider well-built stokers within the $200 range.

Higher-priced stokers have mechanisms which automatically remove ashes from the boilers. They are sometimes equipped also with covers designed to minimize motor, transmission, and blower sounds. De luxe stoker installations have conveyors which carry coal from specially designed coal bins, eliminating the necessity of filling coal hoppers. Few stokers with this feature are being sold, and these are installed generally in new and higher-priced homes. Some de luxe installations have ash-removal devices which automatically transport the ashes and clinkers to large bins requiring only infrequent emptying.

Anthracite stokers use coal sizes known as "buckwheat" and "rice." Most bituminous stokers operate best with a mixture of "nut" and "slack"; a few operate successfully on 100 per cent slack, although this fuel packs densely, especially when damp, and tends to clog the feeding device.

Almost without exception, coal companies offer better buys and better stoker service than dealers who depend on the sale of stokers or heating equipment alone for their income. Generally, the coal companies are less interested in profits from stoker sales than in maintaining and building up their coal sales. Coal companies not handling stokers have been known to assist old customers in buying stokers at wholesale prices, and in having them installed by competent mechanics. By offering such service, some coal companies try to retain coal customers who might otherwise turn to oil.

Valuable test data on anthracite burning equipment are available from the Anthracite Institute Laboratory, Primos, Delaware County, Pa. This laboratory has published a catalogue listing approved anthracite equipment for domestic use. The Anthracite Institute is maintained by the anthracite industry, one of its chief purposes being the development of more efficient equipment for the use of anthracite fuel.

The stokers listed are produced by manufacturers well established in the industry and having good records covering a period of years. In general, stokers for similar coals have similar construction and methods of operation, the differences being largely in details of construction and control. Some of the stokers in the lower price brackets are omitted from the list of *Best Buys*, not because of inferior construction, but because there is insufficient assurance that dealers will make a satisfactory installation.

COAL STOKERS

Best Buys

Electric Furnace-Man (Electric Furnace Man, Inc., 7 Dey St., NYC).

The Iron Fireman Anthracite Stoker (Iron Fireman Manufacturing Co., Portland, Ore.; branch at Cleveland).

Also Acceptable

The Anchor Coal Stoker (Anchor Stove and Range Co., New Albany, Ind.).

Fairbanks-Morse Stoker (Fairbanks, Morse and Co., 906 S. Wabash Ave., Chicago).

Motorstokor (Hershey-Motorstokor-Corp., 347 Madison Ave., NYC).

Whiting Stoker (Whiting Corp., Harvey, Ill.).

Fuel-Savers Stoker (Fuel Savers, Inc., Harrisburg, Pa.).

BOILERS FOR STOKER FIRING

For high efficiency, boilers intended for stoker firing should have longer flue passages, through which the hot gases must pass before leaving the boiler, than boilers intended for hand firing. The longer passages will not retard the fire because stoker installations are equipped with blowers, so that they are not dependent on natural draft as are practically all domestic hand-fired boilers.

High grade oil-burning boilers have long flue travels, hence they are well adapted for stokers. In some of them, however, the flues have narrow passages which fill rapidly with stoker fly-ash, necessitating the cleaning of the boilers every two or three months.

The following special boilers have been used successfully with stokers:

Acceptable

Fitzgibbons Coal-Eighty (Fitzgibbons Boiler Works, Oswego, N. Y.).

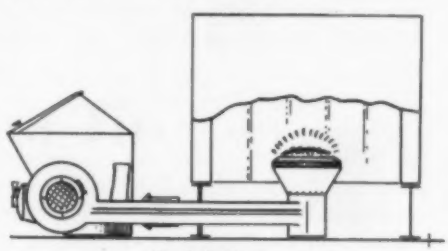
Burnham Steel Coal Burning Boiler (Burnham Boiler Corp., Irvington, N. Y.).

SO & WO Crane Boilers (Crane Co., 825 S. Michigan Ave., Chicago).

While the purchaser of one of these boilers will be assured of high efficiencies if the boiler size is selected according to the manufacturers' recommendations, they are not particularly good buys. Their prices are high, probably because few of these models are sold. For that matter, most "special" and handsomely jacketed boilers are comparatively poor buys.

The purchaser can obtain high efficiencies together with reasonably low prices by dealing with a plumbing or heating contractor of established reputation, and buying a plain cast-iron boiler of one of the following two types:

For small and medium-size residences, buy a round boiler seven sections high, having a "back-and-forth" flue travel; i. e., a boiler in which the products of combustion zig-zag from the front to the back of the boiler on the way up to the smoke outlet. Since such a boiler will be high, a pit may be necessary for it. A six-section boiler may be used to decrease boiler height, but economy will be sacrificed because the flue passages will be shorter. Do not buy a four- or five-section round boiler; if you own one,



Coal Stoker.

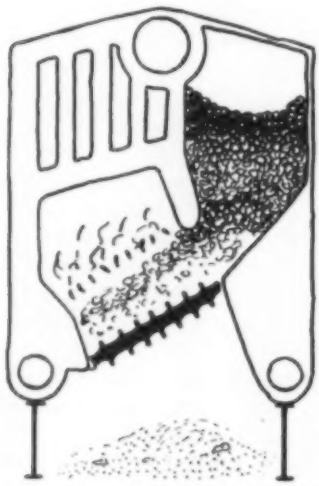
increase its height before using it with a stoker or with an oil burner.

For large residences and for residences which have low head-room in the cellar, install a rectangular boiler having three-pass flue passages with water-tube design. Short and wide boilers cannot give the economy of long and narrow boilers; for best results, install a boiler one and one-half to two times as long as it is wide.

Whichever type of boiler you choose, have it insulated with two inches of magnesia, rock wool, or mineral wool covering, and equipped with an automatic draft regulator. You will then have as good a buy as is obtainable. Of course, it won't have a handsome jacket in pastel colors, but you will save from a third to a half of the price of a "special" boiler, and will obtain at least as economical results. The insulation will, in fact, be far superior to that on many of the new, special, jacketed boilers. In the rare cases where handsome appearance is greatly desired, the boiler can be covered neatly with canvas, then painted or enamelled to suit the owner.

MAGAZINE FEED BOILERS

Some of the advantages—including fuel economy—of automatic heating with coal are provided by modern magazine-feed boilers. These burn the small, inexpensive sizes of anthracite. They are available in exceptionally efficient designs. They have no electric motors, hence involve no current costs. They are especially desirable in areas where there is no electricity available to operate a stoker or oil burner, or where interruptions in current supply occur frequently and for long intervals during the winter months. An electric thermostat and damper operating motor are, however, necessary if these boilers are to provide the same temperature control gained with stokers and oil burners. Should the current fail, the heat can be regulated manually by means of draft ports and dampers, but the fire continues instead of going out as it would with a power oil burner or stoker.



Magazine Feed Coal Boiler.

The Anthracite Institute has developed an unusually efficient magazine-feed boiler which, it is claimed, can be sold at exceptionally low prices. The Institute expects that within a year this boiler will be produced by a large manufacturer.

Magazine Boilers

The following magazine-feed boilers are available at the present time:

Best Buy

Spencer Magazine Feed Boiler (Spencer Heater Co., Williamsport, Pa.).

Also Acceptable

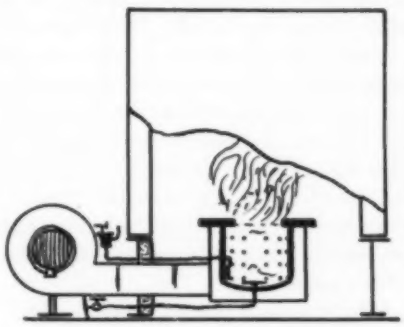
Ideal Magazine Boiler (American Radiator Co., 40 W. 40 St., NYC).

Weil-McLain Self-Feed Boiler (Weil-McLain Co., 641 W. Lake St., Chicago).

OIL BURNERS

Eighty-five per cent of the domestic burners sold today are of the gun type. During the past five years this type of burner has become increasingly popular; many manufacturers previously producing rotary, vaporizing, and other types of burners have abandoned them in favor of gun-type models.

Besides giving more trouble because of smoking and carbon formation, vaporizing-type burners are generally more expensive, since they operate satisfactorily only on kerosene, No. 1 fuel oil, or exceptionally light No. 2 fuel oil, and all of these are likely to cost more than the heavier oils used in the better gun-type makes. If you have a rotary burner, however, and it operates satisfactorily, do not let a salesman for a gun burner persuade you that yours is obsolete and should be replaced.



Vaporizing-Type Oil Burner.

Vertical rotary or "wall flame" burners have the advantage of being quieter, on most installations, than gun-type burners would be. And, in laboratory tests they develop two to five per cent higher efficiencies than do typical gun burners in the same boilers. But vertical rotary burners operate on the same combustion principle as vaporizing burners; that is, the oil is not atomized and burned in suspension, but is vaporized while in contact with hot metal or other hot surfaces. Vertical rotaries cannot, therefore, use the inexpensive heavy oils available for gun burners. Moreover, the motor of the vertical rotary is in the ashpit of the boiler. Here it may become overheated during heavy operation in severely cold weather; it may become dirty and damp during the summer; and its care and lubrication may be generally neglected. Despite these disadvantages, however, only rotary burners can be used successfully in many round or square boilers.

These statements apply only to the domestic field, however; for apartment houses, schools, factories, etc., the trend is towards the use of ex-

tremely heavy oils, like those used in ships and power plants. The "horizontal rotary" burner is best suited to such heavy oils.

Most of the leading makes of gun-type burners are of the high-pressure atomizing type. Oil pressures from about 70 to 150 pounds are used to atomize the oil by forcing it through a small nozzle opening. An exception is the *Williams Oil-O-Matic*, which employs low oil pressure, air pressure being used to break up the oil into fine particles.

About ninety-eight per cent of the gun-type burners sold today are assembled products. The "manufacturers" may be responsible for the designs of a few castings, but the motors, oil pumps, nozzles, controls, valves, strainers, and ignition systems are made by a few large specialty manufacturers who sell parts to hundreds of burner "manufacturers."

This simplifies the purchaser's problem, for as long as the gun-type burner offered him is of orthodox design and made up of standard parts, he need have little worry about replacing a motor, a pump, a control system, or other important parts.

If the gun-type burner you are considering buying is made up of the parts listed below, you can disregard the manufacturer's name almost entirely, and buy on the basis of price and of the confidence you have in the dealer. Whatever the burner or the parts, do not buy from refrigerator dealers, radio stores, department stores or others handling burners as a sideline.

PARTS USED IN MANUFACTURING GUN-TYPE BURNERS

The manufacturers' names after each item are listed in order of preference. If the dealer can provide it, demand the product of one of the first manufacturers listed:

Good Buys
(In order of preference)

OIL PUMPS: Webster two-stage, Tuthill, Viking, Sundstrand, Webster single.

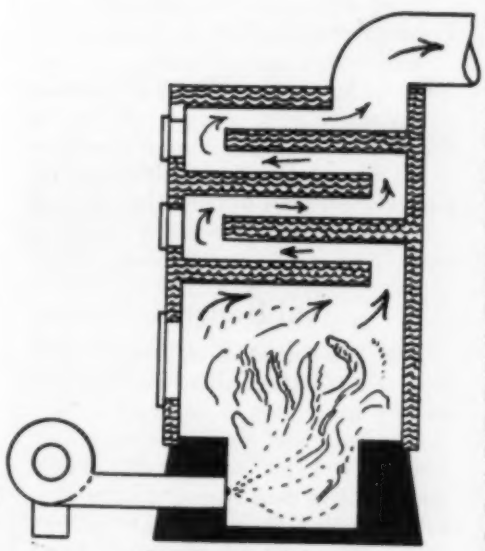
ELECTRIC MOTORS: Century, Emerson, General Electric, Ohio, Delco, Leland, Westinghouse. Types of motors are given preference in this order: 1. Capacitor; 2. Split phase; 3. Induction repulsion. Induction repulsion motors cost more than split phase motors, but despite this give more trouble in oil burners.

CONTROLS: Minneapolis-Honeywell, Penn Electric Switch.

STRAINERS: Monarch, Webster, Detroit, Eddington, Cuno, Purolator.

IGNITION TRANSFORMERS: Jefferson, Webster, Dongan, General Electric.

OIL VALVES: Monarch, Webster, Detroit, Eddington.

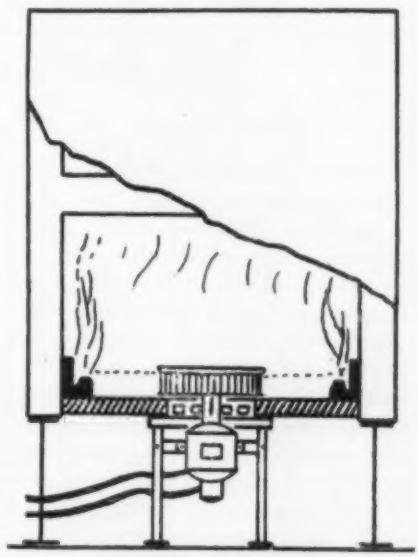


Gun-Type Oil Burner

Burner Costs

A study of the burner department of a large department store reveals where the purchaser's dollars go when he buys an oil burner, for the case is parallel to those of most large burner dealers. The oil burner and all the controls installed with it cost this department store $90. This included a plain thermostat; electric clock thermostats are extra. The work of installing the burner, of supplying all material other than the burner (oil tank, piping, wiring, and firebrick material), and of servicing the burner for one year is sublet to a contractor who charges $85 per burner. Thus, all direct expenses plus servicing for one year cost the department store $175. The burner selling price is $275. With the salesman getting a commission of $25, the department store nets $75 for overhead, advertising, and profits. The $85 for installation and service, and the $90 for burner and controls are the minimum figures for which satisfactory burner and installation can be expected.

Many fuel companies sell good burners at cost or even less, to build up oil business. During 1935, you could buy in New Bedford, Mass., a well installed *Braden* burner for $150. *Masterkraft* burners were offered at prices almost as low. This was the result of a price war between two local independent oil companies. At the same time, *Braden* or *Masterkraft* burners were being sold in different cities in New York State for from $250 to $325, with identical installation, service, etc.



Rotary Type Oil Burner

Most of the burners listed are assembled from standard parts. The *Electrol* and the *Quiet May*, however, both have special pumps built by the manufacturers. Though they are no better than standard pumps, they are far more expensive to replace. In the *Oil-O-Matic*, no standard parts available from other manufacturers (except the controls) are used. The *Oil-O-Matic* has, however, two important advantages not present in high pressure, conventional, gun-type burners: first, this burner works better with low-grade, cheaper, oils, than the gun-type. Second, while the minimum firing rate for ordinary gun-type burners is one gallon of oil per hour, with the *Oil-O-*

Matic a firing rate as low as a quarter-gallon of oil per hour may be used. It is frequently advantageous to use low firing rates in heating bungalows and other small residences or during warmer weather.

The following listings are given with the recommendation that the purchaser buy on price, provided that he takes the precautions already noted. But if prices are nearly the same, these additional listings will be helpful. Do not buy a standard gun-type burner at a higher price because the dealer and manufacturer allege that some special method of handling the oil or air, or some special control, makes the burner more valuable. Such claims are almost entirely without substance.

The burners listed can be installed in an existing boiler. They sell for from about $225 to about $360, the price including a 275-gallon fuel oil tank, temperature and safety controls, installation, and one year's free service.

Oil Burners

Best Buys

Williams Oil-O-Matic (Williams Oil-O-Matic Heating Corp., Bloomington, Ill.). With reservations given above. Especially adaptable to small houses.

Gilbarco (Gilbert & Barker Mfg. Co., Springfield, Mass. — subsidiary of Standard Oil Co. of New Jersey).

Electrol (Electrol, Inc., Clifton, N. J.)

Timken Gun Type (The Timken Silent Automatic Co., 100 Clark Ave., Detroit).

Also Acceptable

(The order has no significance)

ABC (Automatic Burner Corp., 1823 W. Carroll Ave., Chicago). Gun type only.

Bethlehem Doe (Bethlehem Foundry and Machine Co., Bethlehem, Pa.).

Branford (Malleable Iron Fittings Co., Branford, Conn.)

Caloroil (Caloroil Burner Corp., Hartford, Conn.—subsidiary of Silent Glow Oil Burner Corp., Hartford, Conn.). Gun type only.

Century (Century Engineering Corp., Cedar Rapids, Iowa).

Delco-Heat (Delco Appliance Corp., 391 Lyell Ave., Rochester, N. Y.—subsidiary of General Motors).

Gar Wood (Gar Wood Industries, Inc., Detroit).

Masterkraft (Harvey Whipple, Inc., Springfield, Mass.).

Petro Gun Type (Petroleum Heat & Power Co., Stamford, Conn.).

Quiet May (May Oil Burner Corp., Maryland Ave. and Oliver, Baltimore).

Silent Glow (Silent Glow Oil Burner Corp., Hartford, Conn.). Gun type only. Believed to be the same burner as *Caloroil*.

Toridheet Gun Type (Cleveland Steel Products Corp., 7306 Madison Ave., Cleveland).

York (York Oil Burner Co., Inc., York, Pa.).

Not Acceptable

Wall flame rotary burners *Not Acceptable* when gun type can be used. For special cases where this type is required, see listings of rotary centrifugal burners.

Marr (Franklin Oil Heating, Inc., Columbus, Ohio). Vaporizing type burners.

Challenger (Sterling Materials Co., Inc., 1860 Broadway, NYC). Vaporizing-type burners.

Hercules (Sears, Roebuck & Co., Philadelphia). Because of inferior installation and service work.

ROTARY CENTRIFUGAL TYPE OIL BURNERS

As previously stated, the rotary type burners may be required for some round or square boilers already installed. The following makes are listed for those who have such boilers and wish to adapt them to oil heat:

Timken Silent Automatic (Timken Silent Automatic Co., Detroit).

Petro (Petroleum Heat and Power Co., Stamford, Conn.).

ABC (Automatic Burner Corp., Chicago).

Fluid Heat (Anchor Post Fence Co., Oil Burner Division, Baltimore).

United States Oil Burner (Lassen and Bissell, Inc., Hartford, Conn.).

When Buying an Oil Burner

1. Give preference to burners which will take the cheapest grades of oil such as No. 3 (sold by some companies as No. 4). Salesmen will, however, often claim that a burner will handle No. 3 or No. 4 oil when it will actually burn only No. 1 or No. 2 satisfactorily.
2. Get burner prices from well-established oil companies; such companies frequently sell burners at reasonable prices and give good, long-time repair and maintenance service .
3. See that the boiler is supplied with draft regulator automatically operated with electric clock thermostat.
4. Insist on the use of copper tubing for all oil lines.
5. See that your contract calls for a tank gauge.
6. Figure your cost carefully before buying a high-priced special boiler for oil burners.
7. Examine your chimney and the pipe between boiler and chimney to make sure that they are tight, before installing an oil burner.
8. Buy only an oil burner which is approved by the National Board of Fire Underwriters, and be sure that the Underwriters' seal is on the burner and on the oil tank.
9. Don't let an enthusiastic oil-burner salesman persuade you to sign a contract before you have made cost comparisons with stokers and with gas boilers. Gas is better than oil for domestic heating, and in your community may be cheaper.

Oil Boilers

The recommendations made with respect to special boilers for use with stokers apply also to oil-firing.

Plumbers and heating contractors frequently know considerably more about boilers than burner dealers who have handled them for only a few years. Moreover, plumbers and heat-

ing contractors generally can make profits at considerably lower prices because their overhead and sales expenses are much lower. It is therefore advisable to ask for bids from the neighborhood plumber when you are buying a new boiler, even though he does not mail you expensive literature, and does not maintain a sales force and a beautiful Main Street show room.

The boilers listed are sold for oil-firing by well-known manufacturers. Prices of these plus prices of good burners will be lower, in almost every case, than the prices of boiler-burner units which have integral oil burners. You may be able to make a still better buy, however, by following the recommendations made above. If you can't, then buy one of the boilers listed. Although slightly more expensive than cast-iron, steel boilers are preferable for hot water and steam systems in respect both to safety and efficiency.

Boilers for Oil Burners

Best Buys

Fitzgibbons "Oil-Eighty" (Fitzgibbons Boiler Works, Oswego, N. Y.). Steel.

Burnham Cast-Iron Oil Burning Boiler (Burnham Boiler Corp., Irvington, N. Y.).

H. B. Smith Oil Boilers (H. B. Smith Boiler Co., Westfield, Mass.).

Capitol Series O Oil Burning Boiler (United States Radiator Corp., Detroit).

Also Acceptable

Titusville Boilers (Titusville Iron Works Co., Titusville, Pa.). Steel.

Arco Oil Furnace No. 11 (American Radiator Co., 40 W. 40th St., NYC).

Kewanee Type R (Kewanee Boiler Corp., Kewanee, Ill.—subsidiary of American Radiator Co.). Steel.

Not Acceptable

National Bonded Oil Burning Boiler (National Radiator Corp., Johnstown, Pa.).

Thatcher Oil Master Boiler (The Thatcher Co., 39 St. Francis St., Newark, N. J.).

Weil-McLain (Weil-McLain Co., 641 Lake St., Chicago).

Ideal Red Flash and *Ideal DeLuxe* (American Radiator Co., NYC).

The boilers listed as *Not Acceptable* are not efficiently designed for oil, having large flue passages and a comparatively small amount of indirect heating surface. By following the manufacturer's recommendations as to size you can get sufficient *capacity*, but *efficiencies* will be intolerably low in comparison with better designed oil burning boilers.

Boiler-Burner Units

The following oil-fired boiler-burner units are offered by leading oil burner manufacturers. Ordinarily, because of factors already mentioned, these will be poor buys compared with combinations of good oil burners and good boilers designed for oil. Local competitive conditions may, however, change this. A maximum stack temperature of 500° Fahrenheit should be specified by the prospective buyer, who should insist upon a guarantee that the maximum will not be exceeded.

Best Buys

Gar Wood (Gar Wood Industries, Inc., Detroit).

Electrol-Kewanee (Electrol, Inc., Clifton, N. J.).

Quiet May (May Oil Burner Corp., Maryland Ave. and Oliver, Baltimore).

Also Acceptable

National-Williams Oil-O-Matic (National Radiator Co., Johnstown, Pa.).

Delco Heat Boiler (Delco Appliance Corp., 391 Lyell Ave., Rochester, N. Y.).

Timken (*fired by gun-type burner*) (Timken Silent Automatic Corp., 100 Clark Ave., Detroit).

Heil (The Heil Co., 3000 W. Montana St., Milwaukee).

Kelvinator (Kelvinator Corp., Detroit).

Norge (Norge Corp., Detroit).

Not Acceptable

General Electric Oil Furnace (General Electric Co., 570 Lexington Ave., NYC).

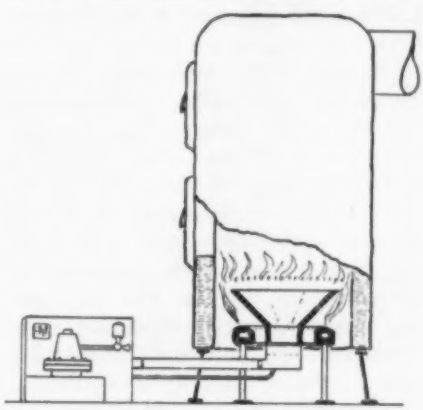
The installed cost of size LA-4 of the *General Electric Oil Furnace* ranges from $800 for a steam boiler to $880 for a hot water boiler and of size LA-5, from $950 for a steam boiler to $1000 for a hot water boiler. Unit consists of a welded steel boiler and integral oil burning unit.

The design principles differ from those in any other oil-burner boiler unit on the market but its much heralded efficiency has, in too many cases, not come up to the expectations woven by enthusiastic salesmen around the trade symbol of the great General Electric Company. The boiler does get dirty and is almost impossible to clean despite the claim that the combustion is so perfect that no cleaning is required.

It is most efficient when used in connection with a hot water heating system, but when used as a steam boiler, its efficiency, particularly under near maximum rated load, is lower than that of many of the conventional type units. Stack temperatures, by which efficiency is judged, are frequently so high as to char wood a few inches from the smoke pipe.

Gas Boilers

Gas will provide the best automatic heating from the standpoint of cleanliness, efficiency, freedom from repair, and operating satisfaction when installed in connection with an adequate heating system. Where natural gas is available at low rates and high unit heat content (usually 1,000 to 1,200



Conversion Gas Burner.

btu per cubic foot), it will prove cheaper in many cases than either coal or oil.

Gas companies frequently furnish all service without charge on gas heating boilers, including thorough cleaning and adjustment once a year, as well as any emergency service required. Servicing will usually cost $10 a year or more for oil burners or stokers. The capacity of gas boilers should be determined by A.G.A. (American Gas Association) ratings which, however, are based only on capacity and safety, *not on efficiency*.

Gas boilers, like oil and coal boilers, have been elaborately decorated with *de luxe* jackets which add to their cost. All makes, however, are available either with the *de luxe* jacket, or with a plain jacket at a reduction in price. The final installed cost of a gas boiler also depends upon locality, dealer selling policy, and installation cost. It is, therefore, difficult to list *Best Buys* except upon the basis of over-all efficiency and past service record.

Most of the companies sell either conversion units for installation in a separate boiler or furnace, or combination boiler-burner units.

Gas Boilers

Best Buys

Bryant Gas Boiler (Bryant Heater Company, Cleveland).

General Electric (General Electric Company, 570 Lexington Ave., NYC). It is understood that this boiler is the former B-Line with certain modifications and improvements in control which have been made by the General Electric Company.

Also Acceptable

(In estimated order of merit)

Burnham-Simplex (Burnham Boiler Corp., Irvington, N. Y.).

Crane-Basmore (The Crane Company, Chicago).

Hook Gas Boiler (Hook Manufacturing Co., Pittsburgh).

The Pittsburgh (Pittsburgh Water Heater Co., Pittsburgh).

Mueller Gas Boiler (L. J. Mueller Furnace Co., Milwaukee).

Ideal (American Gas Products Corp., Division of American Radiator-Standard Sanitary Corp., NYC).

National (Gas Heating Division of National Radiator Corp., Johnstown, Pa.).

A BLACK LIST OF DRUGS AND COSMETICS

THE NEW YORK CITY SECRET BLACK List of dangerous drugs and cosmetics, first disclosed in the *People's Press*, a national weekly newspaper, after refusal of the city administration to release the list, is published here for the benefit of the members of the Consumers Union. Future issues of CONSUMERS UNION *Reports* will carry analyses of many of these and a great many other dangerous drugs and cosmetics. The list is published for its great immediate value, however, since such studies must of necessity extend over a considerable period of time.

With the list is printed, in part, the following comment on it by Arthur Kallet which appeared in the *People's Press:*

"Not all of the medicines and cosmetics are nationally distributed nor are all, particularly among the cosmetics, seriously hazardous; but a very high percentage of them are. In the list are some of the most heavily advertised, most widely used products in the drug market—such medicines as Bromo-Seltzer, Ex-Lax, Grove's Laxative Bromo-Quinine, Marmola; such cosmetics as Ambrosia, Campana's Italian Balm, Inecto, and Pebeco Toothpaste.

"The New York City Black List is by no means complete. Numerous drugs and cosmetics sold in every drug store, containing the same ingredients as some on the list, or other ingredients equally dangerous, are omitted. Furthermore, many medicines containing ingredients which are usually safe, but which can become dangerous under certain conditions of use, do not appear. Nor does it include the innumerable nostrums containing no harmful ingredients, but which are dangerous because they are advertised and sold for use in conditions demanding prompt medical attention.

"The list, as published here, gives the product under its advertised name, and the dangerous ingredient found when the product was analyzed. Notations in the Black List, omitted here for lack of space, indicate the listings are based on analyses made over a period of years by various public and private agencies, such as the Federal Food and Drug Administration and the American Medical Association."

The Products Listed

The largest group in the Black List is the headache and pain cures, among which are *Ammonol* Tablets, *Anacin* Tablets, *B. C., Bromo-Seltzer, Capudine, Kohler's Antidote* and *Salicon*. All these products contain one or more ingredients which have caused cases of fatal poisoning. These ingredients are acetanilid, acetphenetidin, antipyrin, and aspirin.

This does not mean that anyone who takes one of these remedies is likely to die. In fact, such a likelihood is very slight.

But it is true that certain people are especially sensitive to these drugs. Many thousands of such sensitive people have been poisoned by them, and a great many have died. Unfortunately, a person cannot know beforehand whether or not he is sensitive.

Even to those not especially sensitive, however, all of these drugs are potentially harmful, although aspirin, the ingredient of *Salicon*, is probably the least injurious. All are heart depressants, and they sometimes can be dangerous to persons with heart defects.

Furthermore, there is a latent danger in the long-continued consumption of large quantities of these drugs, a common thing among persons subject to headaches and pains. This danger lies in the possibility of impairment of function of certain organs of the body, a hazard present, in fact, with

almost any drug taken in considerable amounts over long periods of time.

This does not mean that no one should ever use drugs for the relief of headache and pain. It does mean, however, that the advertising which encourages the constant, continued use of such remedies as those named is dangerous and vicious. It means that drugs for the relief of headache and pain should be taken in minimum quantities only when really necessary. And that when any pain-relieving drug causes any untoward reaction—which may mean that the person is especially sensitive—it should be discontinued immediately.

Of all of the pain-relieving drugs, aspirin is probably the safest, and perhaps the only one which should be used without medical advice. The other drugs should be used only for limited periods under a physician's direction. Some of these drugs are also present in cold "cures" such as *Grove's Laxative Bromo Quinine* and *Hill's Cascara Bromide Quinine*. When pain-relieving drugs are desired, they should be purchased in their simple, known form, as aspirin or acetanilid; not as *Salicon, Anacin* or *B. C.*

Another large group in the Black List is the laxatives containing the drug phenolphthalein. This group includes *Asper-Lax, Boals Rolls, Espotabs* (originally called *Epsotabs* and masquerading as concentrated epsom salt tablets), *Ex-Lax*, and *Phenolax*.

Just as many persons are sensitive to the pain-relieving drugs, so many are sensitive to phenolphthalein. To such sensitive persons, this drug can cause serious injury and even death.

Some physicians believe that phenolphthalein is harmful only to those who are especially sensitive. Others believe that this drug is a poison injurious in some degree to everyone who takes it.

For safety's sake, those who take laxatives must accept the latter view, and consider phenolphthalein harmful to everyone. This is especially so, since there are far better laxatives available (for example mineral oil, agar agar, and cascara sagrada); and it is rarely if ever necessary for anyone to take phenolphthalein.

Among the most dangerous products in the entire list are the reducing medicines. These include preparations containing thyroid gland extract, such as *Marmola, Faid, O. B. C. T.*, and *Re-Duce-Oids*, and those containing dinitrophenol, such as *Formula 281*, and *Slim*. Both thyroid extract and dinitrophenol are drugs which have caused death, and neither should ever be used except under physician's direction.

Another dangerous drug found on the list is cinchophen, the active ingredient of *Atophan Tablets* and *Renton's Hydrocin Tablets*.

This drug, used especially in rheumatism, can cause fatal damage to the liver and has also been responsible for many deaths.

The Cosmetic Section

Hair dyes properly lead the cosmetic section of the New York City Black List. They are probably the most dangerous of all widely used cosmetics, and not a single hair dye, with the exception of pure henna, is safe.

The aniline dyes can be very injurious to those who have a special sensitivity to such dyes. The injuries which can result are of such varied nature that it is often difficult to trace the injury to the dye which caused it.

Here is a medical report on one case, showing what extensive injuries may result: "A woman . . . for nearly two years had suffered more or less continuously from gastro-intestinal disturbances with intense headaches and nervous symptoms—impairment of sensation . . . vertigo . . . weakness of legs. Investigation for some toxic element led to the incrimination of a black hair dye, *Inecto*."

The American Medical Association at one time reported over thirty cases of poisoning from the use of *Mrs. Potter's Walnut Tint Hair Stain*, one of the aniline dyes.

Despite their injurious nature, however, the aniline-type dyes are the most effective. Those who find it necessary to dye the hair for economic or other reasons should have a "sensitivity test" made, with the particular aniline dye to be used, by an experienced beauty shop operator.

The silver contained in some of the dyes, such as *Farr's for Gray Hair*, and *Mary T. Goldman's Gray Hair Restorer*, not only is poisonous, but may also accumulate in the skin and cause a permanent, dark discoloration which cannot be removed by any means. The other metals contained in dyes of this type are also poisonous.

Another large group in the poison list is the skin bleaches and freckle removers. All of these contain some compound of mercury, a poison which should not be used on the skin except under medical direction.

Most dermatologists not in the pay of cosmetic manufacturers believe that carbolic acid should never be used on the skin; that even in very dilute solutions it can cause serious injury. The Black List properly includes, therefore, three widely advertised cosmetics, *Ambrosia, Campana's Italian Balm*, and *D. D. D.*, which contain carbolic acid.

The list also includes a number of hair "tonics" and other preparations for the hair which were found to be injurious because they contained arsenic. These include *Dander-Off, Liquid Arvon, Mahdeen*, and *Wildroot Dandruff Remedy*.

Another large group on the list is the sulfide type of depilatory. This group includes *Delatone, DeMiracle, DeWans, Neet, Shavix, Snow, X-Bazin*, and *Zip Depilatory Cream*. While these products are less likely to be seriously injurious than many other cosmetics on the list, they can cause rashes and burns if the skin is sensitive, or if they are used too often or left on too long.

The sulfides can dissolve not only hair, but also skin. They should never be used near the eyes, since they can cause blindness.

Among the other cosmetic preparations on the list are *Bleachodent*, a whitener for the teeth which was found to contain acids capable of dissolving tooth enamel and causing irreparable damage to the teeth; *Dermillo* and *Herpicide*, found to contain salicylic acid, which can cause severe skin rashes, and *Pebeco Toothpaste*, which contains potassium chlorate, a poison which many medical and dental authorities insist should not be used continually in the mouth.

The inclusion of two types of cosmetic preparations in the Black List may be questionable. These are the deodorants containing aluminum chloride and hair "tonics" containing resorcin. While aluminum chloride and resorcin can be irritating if used excessively, the likelihood of serious injury is remote.

The blacklist follows:

NEW YORK'S BLACK LIST

Names of injurious ingredients follow names of products

Drugs

Ammonol Tablets—acetanilid, acetphenetidin.
Anacin Tablets—acetphenetidin, aspirin, caffeine.
Arium—radium, strychnine.
Asper-Lax—phenolphthalein, aspirin.
Atophan Tablets—cinchophen.
B. C. for Headache & Neuralgia—aspirin, acetanilid.
Beecham's Pills—aloes.
Boals Rolls—phenolphthalein.
Bromo Seltzer—acetanilid, bromide.
Capudine—antipyrin, salicylic acid.
Carter's Little Liver Pills—aloes.
Curriers Tablets—bismuth subnitrate.
Cuticura Pills—nux vomica.
Cystex—nux vomica.
Doan's Kidney Pills—potassium nitrate.
En-Ar-Co-Oil—amyl alcohol.
Eopa Phytolberry Tablets (ingredients not named in Black List).
Epsotabs (Espotabs)—phenolphthalein.
Ex-Lax—phenolphthalein.
Faid—thyroid.
Felsol—antipyrin, acetanilid, caffeine.
Formamint—formaldehyde.
Formula 281—dinitrophenol.
Gray's Ointment—lead compound.
Groves Laxative Bromo Quinine—acetanilid.
(Dr.) Hand's Teething Lotion—potassium bromide.
Hill's Cascara Bromide Quinine—acetanilid.
Hogan's Old Reliable Cough Syrup—chloroform.
Kohler's Antidote—acetphenetidin.
Korein—iodine.
Low's Worm Syrup—santonin.
Marmola Tablets—thyroid.
Miles Restorative Nervine—bromide mixture, Fowler solution.
Munyon's Grippe Remedy—arsenic (trace).
Neutroids—iodol.
Nurito—colchicine salicylate, aspirin, phenolphthalein.
O. B. C. T.—thyroid.
Phenolax—phenolphthalein.
Phenol Sodique—carbolic acid.
Pinex—chloroform.
Raz-Mah—aspirin, caffeine.
Re-Duce-Oids—thyroid, phenolphthalein.
Renton's Hydrocin Tablets—cinchophen.
Rinex (Dr. Platt's)—aspirin, acetphenetidin.
R.X. 157—(ingredients not named in Black List).
Salicon—aspirin, phenolphthalein.
Shac—acetanilid, caffeine.
Slim—dinitrophenol.

Cosmetics

Mrs. S. A. Allen's Hair Color Restorer—lead acetate.
Ambrosia—carbolic acid.
Anti-Mole—nitric acid, glacial acetic acid.
Barbo Compound—lead acetate.
Barry's Tricopherous—cantharides, capsicum.
Bay Roma—lead acetate.
Berry's Freckle Ointment—ammoniated mercury.
Black & White Ointment—mercury.
Buckingham's Dye for Whiskers—ammoniacal silver nitrate, copper sulphate.
Bleachodent—hydrochloric or sulphuric acid.
Campana's Italian Balm—carbolic acid.
Canute Water—silver salt.
Clear-Tone—mercurous chloride.
D. D. D.—chloral hydrate, carbolic acid, methyl salicylate.
Damchinsky's Hair Dye—copper chlorides, pyrogallic acid.
Dander-Off—arsenic trioxide.
Delatone—barium sulphide, barium sulphate.
DeMiracle (depilatory)—sodium sulphide.
Derwillo—salicylic acid.
DeWans—strontium sulphide.
Dew-Deodorant—aluminum chloride.
Eau Sublime—paraphenylene diamine.
Empress Instantaneous Hair Color Restorer—paratoluylene diamine.
Farr's for Gray Hair—silver nitrate.
Glover's Mange Cure—creosote.
Mary T. Goldman's Gray Hair Restorer—silver nitrate, pyrogallic acid.
Gouraud Oriental Cream—mercurous chloride.
Hay's Hair Health—lead acetate.
Herpicide (Newbro's)—salicylic acid, carbolic acid.
Hess Hair Milk—lead acetate.
Hill's Hair & Whisker Dye—pyrogallic acid, silver nitrate.
Hubert's Malvina—ammoniated mercury.
Inecto—paratoluylene diamine, nitrobenzene.
Kingsbery's Freckle Lotion—bichloride of mercury.
Kintho Beauty Cream—ammoniated mercury.
Kolor-Bak—lead acetate.
Kurlene—mercury.
La Creole—lead acetate.
Lea's Hair Tonic—lead and sulphur dye.
Liquid Arvon—arsenous oxide.
Mahdeen—arsenic trioxide.
Marvo Skin Peel—resorcin.
Mr. McCorrison's Famous Diamond Lotion—bichloride of mercury.
Mercolized Wax—ammoniated mercury.
Nadinola Skin Purifier—mercury.
Neet—calcium sulphide.
Neos Henna—copper salt.
Nu-Hair—lead.
O'Dell's Hair Color Restorer—lead acetate.
Othine Freckle Cream—ammoniated mercury.
Palmer's Skin Whitener—ammoniated mercury.
Parker's Hair Balsam—lead acetate.
B. Paul's Hair Coloring—pyrogallol.
Pebeco Toothpaste—potassium chlorate.
Mrs. Potter's Walnut Tint Hair Stain—paraphenylene diamine.
Q-Ban Hair Color Restorer—lead acetate.
Royal Hair Restorer—silver salt.
Ruppert's Face Bleach—bichloride of mercury.
Shavix—strontium sulphide.
Simplex Hair Coloring—paraphenylene diamine.
Snow—calcium sulphide.
S. T. 37 Toothpaste—hexylresorcinol.
Stillman's Freckle Cream—ammoniated mercury.
Walnutta Hair Stain—pyrogallol.
Well's Hair Balsam—lead acetate.
Wildroot Dandruff Remedy—arsenic, resorcin.
Winx—iron oxide in shellac or similar resin.
Woodbury's Hair Tonic—resorcin.
Wyeth's Sage & Sulphur Compound—lead acetate.
X-Bazin—calcium sulphide, barium sulphide.
Zip Depilatory Cream—barium sulphate and calcium hydrosulphide.